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Siskiyou
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NORTH FORK OF THE SMITH RIVER WATERSHED ANALYSIS 1995

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I have read this analysis and it meets the Standards and Guidelines for watershed analysis required by an amendment to the Forest Plan (Record of Decision dated April 1994).

SIGNED Michael Fran
District Ranger

DATE 10/31/95

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Introduction and Relationship to Other Planning Documents

The North Fork of the Smith River watershed was designated a Key Watershed in the Siskiyou Land and Resource Management Plan as amended by the Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents Within the Range of the Northern Spotted Owl (ROD, 1994). A watershed analysis is required in Key Watersheds prior to initiating activities to ensure Aquatic Conservation Strategy Objectives are met. It is an analytical process focused on collecting and compiling information within the watershed. The collected information will be used to guide resource management in the watershed, including restoration activities. This watershed analysis used the six step process initially outlined in the draft Ecosystem Analysis at the Watershed Scale dated March 24, 1995. The final guide (Version 2.2) which was published on August 28, 1995, confirmed this six step process, and the watershed analysis is consistent with the publication.

This watershed analysis will cover the portion of the North Fork Smith River watershed within the State of Oregon with the exception of the North Fork of Diamond Creek. Only a minor amount of the North Fork Diamond Creek watershed is in Oregon and as a result was not included in this analysis. The analysis includes portions of the Illinois Valley and Chetco Ranger Districts on the Siskiyou National Forest. This analysis covers over 50,400 acres or approximately half of the North Fork of the Smith watershed. It covers approximately 11% of the 463,500 acre Smith River watershed. The Gasquet Ranger District, Six Rivers National Forest, will be working on a watershed analysis for the entire Smith River watershed in fiscal year 1996. The information contained in this report will be incorporated as needed into the Smith River watershed analysis.

There are 13 miles of the North Fork of the Smith River within Oregon. It flows south from the flank of Chetco Peak in the Kalmiopsis Wilderness. It meets the Smith River at Gasquet, California where it flows across Del Norte county to the Pacific Ocean at Smith River, California. The North Fork of the Smith was designated a Wild and Scenic River in 1988. The Outstandingly Remarkable Values are scenery, fisheries, and water quality. The portions designated "wild" are above Horse Creek and below Baldface Creek to the Oregon/California state line. The portion between Horse Creek and Baldface Creek is designated "scenic". This watershed analysis will be used as a report in the analysis file for the North Fork of the Smith Wild and Scenic River Management Plan which is currently being prepared by the Chetco Ranger District. Baldface Creek has been designated as potentially eligible as a Wild and Scenic River. The potentially Outstandingly Remarkable Values are fisheries and water quality.

The watershed has been allocated to the following management areas by the Siskiyou Land and Resource Management Plan as amended by the ROD, 1994:

<i>Allocations</i>	<i>Management Areas</i>	<i>Acres</i>
Wilderness	1	19,160
Wild River	2	1,112
Research Natural Area	3	873
Backcountry Recreation	6	1,108
Late Successional Reserves	8	27,538
Scenic River	10	645

The watershed analysis has three components, the aquatic ecosystem, the terrestrial ecosystem, and the social aspects of the watershed. In the report these components are separated, however they are very much interrelated. For example both aquatic and vegetative ecosystems are derived in part from the geology of the watershed. Riparian areas are essential to the aquatic ecosystem, but they are also very important to the terrestrial ecosystem, and to the social aspects of the watershed (Sourdough Camp, for example).

It is important to note that in this report, when the North Fork of the Smith watershed is referenced, it is only referring to that portion within the State of Oregon.

AQUATIC ECOSYSTEM

KEY QUESTION: What is the physical and biotic character of the fish habitat in the North Fork Smith River watershed?

FACTORS	EXISTING CONDITION	OBJECTIVES	PRIORITY LOCATIONS	OPPORTUNITIES
Sediment	There is a high amount of sediment in channels produced from natural landslides. Little to no sediment from management activities exists in fish bearing streams.	Prevent increase in sediment from management activities.	Roads (see appendix).	Stabilize roads where necessary. Maintain existing roads which remain as system roads. Decommission those roads which will not.
Stream flow	Stream flow is rainfall dominated: high in winter, low in summer. Stream flow is powerful and main stem has not been affected by timber harvest and road construction. Small tributaries on westside of the watershed may have been affected but are now recovering.	Maintain streamflow.	Throughout watershed.	None at this time.
Large wood	In 1980, stream surveys showed a low amount (less than optimum) of large wood exists due to high winter flows transporting material out of the system. However, surveys in 1993 and 1994 report adequate large wood indicating the system has recovered from past floods. This type of fluctuation will likely continue with future flood events.	Maintain existing large wood or provide for long term, future recruitment of large wood.	Westside of North Fork Smith River.	Precommercial thin in riparian areas within old harvest units as needed.
Channel morphology	The channel morphology is varied with good pools and riffles. Most streams are low gradient, averaging 2 to 3%.	Maintain processes.	Throughout watershed	None at this time.
Temperature	Temperature is on the warm end of tolerance for salmonids. This is a natural condition resulting from a lack of shading vegetation and landslides on ultramafic soils.	Prevent increases in temperature during management activities.	Westside of North Fork Smith River.	Precommercial thin in riparian areas within old harvest units as needed.
Clarity/Chemistry	Streams are clear and unpolluted.	Maintain quality.	Throughout watershed	None at this time.
Fish Distribution	The North Fork Smith and its tributaries provide pristine habitat which produces high numbers of chinook, steelhead, anadromous cutthroat trout and resident rainbow and cutthroat trout.	Maintain high quality fish habitat.	Throughout watershed	None at this time.
Biotic	Little is known about aquatic non-fish fauna. It is presumed high quality and not unusual. Macroinvertebrate sampling was completed in 1994. Results should be available in late 1995 or 1996.	Maintain high quality habitat.	Throughout watershed	None at this time.
Human Recreation Interactions	There is very light angling pressure. Human recreation does not impact fish habitat.	Maintain no impact to fish habitat and population.	Sourdough Campground	Provide signing of regulations and provide education to user groups as necessary.

TERRESTRIAL ECOSYSTEM

KEY QUESTIONS	EXISTING CONDITIONS	OBJECTIVES	PRIORITY LOCATIONS	OPPORTUNITIES
What are the special/ unique habitats in the watershed?	Open meadow areas, including serpentine areas, are being reduced in size by conifer and hardwood encroachment. Lakes, springs and bogs are maintaining their current sizes. Lemmingsworth Bog has trail through part of it. An isolated western hemlock plant series in upper Baldface Creek offers a locally unique late seral structure. These unique habitats account for less than 500 acres (.96%) of the watershed.	Restore open meadows and open serpentine areas. Maintain sizes of meadows, springs, bogs, and lakes. Maintain western hemlock plant series in upper Baldface Creek drainage.	Packsaddle Meadows, Frantz Meadow, Little Cedar Meadow. Open meadows and serpentine areas throughout watershed. Western hemlock areas in upper Baldface Creek drainage. Bogs and springs throughout watershed (Lemmingsworth Gulch).	Restore meadows to 1940 sizes or earlier. Cut and remove or girdle encroaching trees in meadows. Burn meadow and serpentine habitat types. Design strategy to protect or favor existing western hemlock (upper Baldface Creek). Monitor and reduce trail impacts in bogs and springs.
Where are the locations and risk of spread of noxious weeds?	Noxious weeds, mainly scotch broom, bull thistle, and tansy ragwort, have been introduced into the watershed along roads. The weed populations have increased as the number of roads in the watershed has increased.	Reduce the spread of noxious weeds.	<u>Problem roads:</u> 1107, 1107190, 1107220, 1107290, 1107293, 1107330. <u>Isolated populations:</u> 1107180, 1107290, 1107334. <u>No known noxious weeds:</u> 1107221, 1107271, 4402206, 4402112.	Cut/pull/burn noxious weeds along road. Closure of roads. Clean heavy equipment before and after operation. Introduce biological controls at larger infestation sites.
What is the risk of spread of Port-Orford-cedar root disease?	Port-Orford-cedar is abundant in large uninfested areas, including upper Chrome and Baldface Creeks. There are four roads presenting high risk of spread of the root disease, <i>Phytophthora lateralis</i> : 1107220, 4402112, 4402450, and 4402494.	Reduce risk of introduction, especially to high-risk roads.	Heads of uninfested streams, high-risk roads 1107220, 4402112, 4402450, and 4402494. Monitor dead POC for signs of disease along 4402206 in lower Fall Creek and along 4402, one half mile east of river.	Cut Port-Orford-cedar from edges of roads. Closure of roads. Clean equipment before and after operations. Restrict uses to dry season. Use uninfested water in firefighting, other activities. Place lift of rock on 1-2 infested road sites (4402).
Where are snags and large down wood lacking in upland habitats?	Large hardwood and conifer snags and down wood are at reduced levels in the 1,863 acres of managed stands (3.6% of the watershed). These components occur in low amounts in natural stands due to past fires, serpentine soils, and plant series and seral type.	In sub-watersheds where there is less than 60 percent habitat capability for cavity-nesting species, snags and down wood would be developed adjacent to managed stands.	Western portion of the watershed in areas adjacent to managed stands.	Create snags and down wood in areas adjacent to managed stands in the short term. Select trees with larger/faster growth and/or some defect for long term snag development. Thin in overstocked stands to grow larger trees for snag recruitment.
What Proposed, Endangered, Threatened, Sensitive (PETS) species, both flora and fauna, are present?	Several species of sensitive plants are present throughout the watershed. PETS wildlife species are limited: spotted owls, wolverines, and common and California mountain king snakes have been reported. Plecotus (big-eared bats) are suspected and suitable habitat is present. Other PETS wildlife species are not expected due to lack of suitable habitat. The watershed is within South Chetco and West IV Late-Successional Reserves (LSRs).	Maintain or increase populations of sensitive plant and animal species within the watershed. Increase habitat capability for some species (ie spotted owl, serpentine dependent plants) within the watershed.	Known sensitive plants: scattered locations. Spotted owls: scattered locations. Wolverine: Hardtack, Baldface, and Chrome Creek. Common and California King Snake: Kalmiopsis Wilderness.	Improve structure of stands to develop potential suitable habitat for spotted owls by thinning, creating snags and down logs. Avoid disturbance to PETS sites and/or individuals. Maintain known sensitive plant sites. Use prescribed fire in serpentine areas and mid to late seral habitats to maintain these habitats.

KEY QUESTIONS	EXISTING CONDITIONS	OBJECTIVES	PRIORITY LOCATIONS	OPPORTUNITIES
<p>What stands need treatment for forest health and late-successional habitat?</p>	<p>Older forest and interior forest habitat is fragmented into small patch sizes by managed stands and natural conditions. Some older forest habitat is not functioning as interior forest habitat because of small patch size and edge effect. A large portion of the stands (25,000 acres, 48%) are in early to mid seral age classes (pioneer, early seral, serpentine soils, etc). These stands lack the habitat components necessary for development of late-successional seral habitat.</p>	<p>Accelerate growth and development of non-serpentine, early to mid seral stands into late seral stands. Increase patch sizes of older forest and interior forest habitat by development of adjacent early/mid seral stands into late seral. Reduce risk of intense disturbance (stand replacement events) to core interior forest habitat areas.</p>	<p>Older forest and interior forest habitat patches are mostly on upper western side of North Fork Smith River and upper Baldface Creek drainage. There are approximately 175 acres this decade and 390 acres next decade that may be overstocked. These stands could be thinned or released to increase patch size.</p>	<p>Use prescribed fire in and adjacent to older stands to reduce competition and fuels. Plan for low intensity burning or no fire in core habitat areas. Thin and manual release early and mid seral stands to accelerate development of larger conifers and hardwoods.</p>
<p>What is the fire history of the North Fork Smith watershed and what is the future role of fire in the watershed?</p>	<p>Of the six historical fires of significant size (>250 acres), four were human-caused, and two were caused by lightning. Historical records show human-caused fires of the early 20th century were purposely set and were associated with mining operations. A recent fire, the Chrome fire (1990), was caused by a camper. Fire starts have been suppressed for the past 50 years. Continued suppression may result in higher intensity fires when an area does burn. The natural cycle of fire in the watershed is over 300 years. As a result, the watershed is not yet out of balance with that cycle. However, the fuel build up is setting the stage for extreme fire behavior and stand replacement intensity if a major wildfire occurs.</p>	<p>Determine if fire exclusion has contributed to the degradation of certain plant species and unique habitats, and identify areas and habitats where the return of fire would provide a benefit. Determine conditions and specific fire intensity levels where prescribed fire would provide these benefits.</p>	<p>Special/Unique Habitats, Late-Successional Reserves (LSR) surrounding the Kalmiopsis Wilderness, and other areas identified by Terrestrial Key Questions.</p>	<p>Complete fire management plans to allow prescribed fire to achieve resource objectives of Special/Unique Habitats, LSR, and other land allocations.</p>
<p>Are there areas adjacent to the Kalmiopsis Wilderness, where a fire burning under the Kalmiopsis Prescribed Natural Fire Plan (Kalmiopsis PNF) should be allowed to burn beyond the boundaries of the wilderness?</p>	<p>Lightning fires originating within the Kalmiopsis Wilderness may be allowed to burn under conditions specified in the plan. While the wilderness boundary has been established as the PNF boundary, the plan recognizes that there is possibility that a PNF may burn beyond this point. These situations will be addressed for each event by the establishment of a Maximum Allowable Perimeter (MAP). The establishment of the MAP will consider the potential resource benefits/degradation that would be caused by fire, along with ability to contain the fire within the area outside of the wilderness. LSR and unique areas are adjacent to the wilderness and could benefit from low intensity fire. There is a risk that a higher intensity fire than what is desirable for LSR/unique habitats would escape the wilderness/PNF boundary.</p>	<p>Identify areas where fires, burning under the PNF Plan, can be allowed to burn outside of the wilderness.</p>	<p>The Late Successional Reserves and Riparian Reserve areas within the North Fork Smith River watershed.</p>	<p>Fire management plans could be written for LSR's and other land allocations addressing areas and conditions for which the MAP could be extended into these land allocations. It could also address where and when management-ignited prescribed fire could be applied to reduce fuel loadings/intensities in those areas.</p>

SOC SPECTS

KEY QUESTIONS	EXISTING CONDITIONS	OBJECTIVES	PRIORITY LOCATIONS	OPPORTUNITIES
<p>What were the prehistoric uses of the watershed?</p>	<p>Known sites indicate seasonal use of the watershed for hunting and gathering foodstuffs and raw materials for stone tool manufacture, basket making, woodworking etc. Trade and travel routes also traverse the watershed with associated short term travelling camps. A pit house village site may also exist in the watershed indicating long term use. The overall status and number of sites in the watershed is unknown. Formal site evaluations have not been conducted.</p>	<p>Cultural resources will be identified and protected in conjunction with projects planned in the watershed.</p>	<p>Sourdough Camp, meadow areas such as Frantz Meadow, major dividing ridgetops such as the Chetco Divide and the dividing ridge between Chrome and Baldface Creeks, and riverine terraces on all major water-courses.</p>	<p>Cultural resource surveys will precede all ground disturbing projects. All sites discovered will be documented and added to the Forest inventory. The significance of inventoried sites shall be evaluated for eligibility for the National Register of Historic Places. Suitable cultural resource properties may be interpreted for recreational use and the educational benefit of the general public.</p>
<p>What were the historic uses of the watershed?</p>	<p>Known sites indicate an emphasis on various methods of mining for precious or strategic minerals. Historic travel routes established during the mining period provided access and supply routes to the mining districts. Many of these routes evolved into administrative and recreational roads and trails. The Siskiyou National Forest's contribution to the area's history is represented by evidence of Forest improvements and facilities. The overall status and number of sites in the watershed is unknown. Formal site evaluations have not been conducted.</p>	<p>Cultural resources will be identified and protected in conjunction with projects planned in the watershed.</p>	<p>Mining sites and their associated structures scattered throughout the watershed. Priority areas include Baldface Creek, Spokane Creek, the main stem of the North Fork Smith River, the Chetco Divide and The Oaks. Sites containing Forest Service administrative facilities such as Sourdough Camp and Chetco Peak. All existing trails and trail segments including those former trails located on the historic Siskiyou National Forest maps.</p>	<p>Cultural resource surveys will precede all ground disturbing projects. All sites discovered will be documented and added to the Forest inventory. The significance of inventoried sites shall be evaluated for eligibility for the National Register of Historic Places. Suitable cultural resource properties may be interpreted for recreational use and educational benefit of the general public.</p>
<p>Does the watershed contain any culturally significant traditional use areas?</p>	<p>No evidence suggests that the area within the watershed is presently used for traditional activities by local Indian groups. The three local recognized tribes consulted (Telowa, Karuk, Takelma/Siletz) did not provide additional information regarding traditional use in the watershed.</p>	<p>Management of traditional use or religious sites shall be coordinated with American Indian tribal groups. Recognized tribes will be contacted during the public involvement phase of project planning.</p>	<p>None known at this time.</p>	<p>None at this time.</p>
<p>What are the recreation uses in the watershed?</p>	<p>Recreational use is light and is expected to remain the same or increase slightly. Sourdough Camp is the most popular recreation site, providing remote camping that is accessible by high clearance vehicles and motorcycles. The camp receives regular use in the summer, and has been used historically by local residents of Cave Junction and Crescent City. Activities include swimming, fishing, camping, hiking, gold panning and small-suction dredging. It is also a put-in for kayaking. Four trails provide access to the Kalmiopsis Wilderness. Motorized recreation is limited by the lack of roads in the watershed. Most use occurs on the 1107 road and its spurs.</p>	<p>Continue to maintain recreational facilities and opportunities to provide for public recreation and safety.</p>	<p>Major roads, trails and Sourdough Camp.</p>	<p>There may be opportunities to convert roads to trails if they are identified for decommissioning. Candidate roads include 1107220, 4402206, and 4402454 (to Biscuit Hill). There may be an opportunity to repair or improve the facilities and access at Sourdough Camp.</p>

KEY QUESTION: What commodities can be produced from the North Fork Smith watershed?

TYPES OF COMMODITY	EXISTING CONDITIONS	OBJECTIVES	PRIORITY LOCATIONS	OPPORTUNITIES
Timber	<p>1,576 acres of timber harvest has occurred on the west side of the North Fork Smith River drainage. Much of the watershed lies within the Kalmiopsis Wilderness. The remainder of the watershed has been designated Late-Successional Reserve (LSR). Additionally, the Baldface Creek drainage is designated backcountry recreation in the Siskiyou Forest Plan, with a visual quality objective of preservation. Commercial timber activities in the future would be limited to thinning or brushfield conversion to accelerate growth and development of early-mid seral stands into late seral stands, or salvage from catastrophic events.</p>	<p>Improve the condition of the late-successional reserve by accelerating growth and development of early/mid seral stands in the watershed.</p>	<p><u>Commercial thinning:</u> overstocked, undifferentiated mid-seral stands next to roads and older forest and interior forest habitat patches, mostly on western side of North Fork Smith River and upper Baldface Creek. There are approximately 70 acres of potential thinning in five stands. Each of these stands need further examination. Most of the opportunities for commercial thinning will occur with growth of 1500 acres of managed stands over the next 10 to 30 years.</p> <p><u>Brushfield conversion:</u> dense hardwood stands on western side of North Fork Smith River and lower south side of Baldface drainage that do not conflict with objectives for stand diversity within LSR. Several large hardwood stands on the western side of the river were underplanted with conifers in the 1970's and sprayed with herbicides. These should be examined for release potential before conversion.</p> <p><u>Salvage:</u> areas of future catastrophic events (most likely wildfire) outside wilderness.</p>	<p>Commercial thinning or brushfield conversion are methods of accelerating growth and development of early/mid seral stands into late seral stands; salvage from catastrophic events.</p>
Special Forest Products (SFP)	<p>SFP can be collected in Late-Successional Reserve with an LSR assessment. The abundance of serpentine-derived soils supports a diversity of plants with potential for special forest products, including Port-Orford-cedar and white pine boughs and beargrass. While the adjacent Pine Flat area in California is a collection area, no special areas for boughs, beargrass, or huckleberry are identified in the Oregon portion of the North Fork Smith watershed. Special forest product activities have been limited due to number of roads and distance to market. There is evidence of Port-Orford-cedar bough cutting on Road 1107220.</p>	<p>Meet Late-Successional Reserve and other management area objectives while allowing for the collection of special forest products.</p>	<p>Near roads within Late Successional Reserve Areas.</p>	<p>Sustainable collection of special forest products through permits or contracts.</p>
Mining	<p>Mining has been minimal in the North Fork Smith watershed as compared to other watersheds of the Forest. Chromite deposits were worked near Sourdough Camp first in 1918 and then off and on through the 1950's. Recent claims have been filed for iron-nickel laterites, which also contain cobalt, but no chrome or nickel laterite claims are being worked at this time. A few gold placer claims are currently filed and fewer lode deposits are known. Spokane Creek may have had historical gold lode activity, as well as placer mining. Granitic rocks in the nearby Josephine Creek drainage have been mined for lode gold. As a result, the potential for gold mining may be greater than is indicated by literature and the small number of current claims.</p>	<p>Allow for mineral exploration and development while protecting resources and environmental quality.</p>	<p>Where allowed for in the watershed.</p>	<p>Mining may occur when economic conditions make the operation viable.</p>

KEY FINDINGS: NORTH FORK SMITH WATERSHED ANALYSIS

AQUATIC

Fish habitat in the North Fork of the Smith watershed is in near-pristine condition and functions to produce high numbers of anadromous fish.

Physical aspects of the fish habitat in the watershed are dominated by natural processes. Summer stream temperatures are near the warm end of tolerance for salmonids in the lower reaches of Baldface, Chrome, and North Fork Smith. With the exception of temperature, fish habitat is good in most streams and excellent in Baldface Creek. There is some opportunity to limit sediment production by stabilizing some portions of roads in the watershed.

TERRESTRIAL

Open meadows are being reduced in size by conifer and hardwood encroachment. **Unique habitats**, such as open serpentine areas, have been reduced due to fire suppression. Both of these areas support productive native plant populations, especially native grasses. An isolated **western hemlock** plant series is present in the upper Baldface Creek drainage and offers a locally unique habitat type.

Noxious weeds infestations occur primarily on roads associated with the 1107 road system, except spurs 1107221 and 1107271. Most sites are spreading along infested roads, from junctions with 1107 to their termini. No noxious weeds were detected when surveys were completed on the 1107221, 1107271, 4402206 and 4402112 roads.

Snags and large down wood are lacking in managed stand areas due to past timber management activities west of the North Fork Smith River. These components are lacking in natural stands throughout the watershed due to fires, soil conditions, and or plant series and seral types.

Sensitive animal species are limited in abundance due to lack of suitable habitat while **sensitive plant species** are abundant due to the abundance of serpentine and unique habitat types.

Late-successional and interior forest habitat conditions are limited in the watershed due to serpentine soils, plant species composition and past disturbances from fires and timber management. Most late seral habitat areas are in patches less than 200 acres in size. Most larger trees and interior forest habitat areas are present along Horse Creek, North Fork Smith River, and upper Baldface Creek.

Port-Orford-cedar is abundant in large uninfested areas, including upper Chrome and Baldface Creeks. There are four roads which present a potentially high risk of disease spread: 1107220, 4402112, 4402450, and 4402494.

Fire occurrence has been widespread in the watershed during the early part of the 20th century with the exception of the south side of Baldface Creek and the areas west of the North Fork Smith River. The fires were mostly caused by miners in an effort to improve their exploration efforts. Historically, lightning fire starts within the drainage have been low in frequency. Fire suppression has been effective during the past 50 years. Fire may be an appropriate management tool to provide a benefit to certain areas within the watershed.

The Kalmiopsis PNF Plan could allow a prescribed natural fire to burn into the Late Successional Reserve (LSR) areas surrounding the wilderness once site specific prescribed fire plans for LSR have been completed. Under current management direction, prescribed fire in LSR's, Riparian Reserves, and unique areas should be of low intensity. Fires burning in the wilderness, under the PNF Plan, could be of higher intensities than allowed for in these areas.

SOCIAL

Recreational use is light and is expected to remain the same or slightly increase in the future. **Timber Harvest opportunities** are limited by wilderness, backcountry recreation, and LSR designations. Commercial thinning opportunities are limited by the low number of natural stands in suitable condition, but growth of highly-stocked managed stands offer future opportunities. **Special forest products** gathering is limited by the few roads accessing the watershed. Mining for a variety of minerals is possible in the watershed, however economic conditions do not allow for mining operations to be viable at this time.

AQUATIC ECOSYSTEM

The following question was developed to describe the aquatic ecosystem of the North Fork of the Smith watershed.

What is the physical and biotic character of the fish habitat in the North Fork of the Smith River watershed?

There are a number of factors in answering this key question: geology and sediment, stream flow, large wood, channel morphology, temperature, clarity and chemistry, fish distribution and biotic factors, and human recreation interactions.

The reference condition for the physical factors of fish habitat is pre-timber harvest. The first timber harvest in the watershed occurred in 1959. The reference condition for the biotic factors of fish habitat is the current condition, because there is no historical information on fish or macroinvertebrate populations.

Geology

The North Fork of the Smith River and its tributaries flow through the Dothan Formation, the Josephine Peridotite and igneous intrusive rocks.

Roughly 50% of the North Fork of the Smith watershed is underlain by the Josephine ultramafic sheet. This ultramafic rock type produces soils high in iron and magnesium, and toxic metals such as chromium, nickel and cobalt. This soil has a dramatic influence on vegetation resulting in sparse plant growth and increased susceptibility to erosion. This rock type typically forms heavily dissected, oversteepened slopes that are prone to ravel and inner gorge landslides.

From the headwaters near Chetco Peak to the Oregon California border, the North Fork Smith flows through the Dothan Formation. Approximately 35% of the watershed is underlain by the Dothan Formation, which is comprised of interbedded sandstones and mudstones. From Hardtack creek south to the state border, the Dothan Formation is shaped like a finger, bordered to the east and west by the Josephine ultramafics. This finger is highly productive and well vegetated. The Dothan Formation typically forms more gently rounded slopes than the topography of the ultramafic rock types.

Nearly 15% of the North Fork of the Smith watershed is underlain by igneous intrusive rocks, mostly diorite and rhyolite with minor amounts of gabbro and gneissic amphibolite. Topography and vegetation is very similar to that found on the Dothan. Igneous rocks are quite durable and produce coarse gravel and cobbles that enhance fish habitat.

Sediment

Sediment delivery information was collected using aerial photography and field reconnaissance. The major contributors of sediment in the North Fork of the Smith watershed are natural slides, debris flows and channel erosion within the Josephine ultramafic rock unit. Surface erosion as a contributor of sediment is negligible in the watershed.

Cedar Creek, Chrome Creek and Baldface Creek all have numerous natural failures and highly unstable inner gorges. There are also several large, ancient landslide forms in all these drainages.

Approximately 2.0 miles up Baldface Creek near the Sourdough mine, is a large concentration of naturally occurring landslides. Based on the 1939 aerial photographs and conversations with Len Ramp (retired geologist), there is no evidence that mining activities contributed to destabilizing the slope. Portions of the slide extend up to 1000 feet vertically and affect an area 1000 feet wide. Basically, these are ravel slides, ranging in depth from 10 to 30 feet. The overall size of the slide area has changed little since the 1939 photographs, but the continual ravel contributes considerable sediment to Baldface Creek and the North Fork Smith system.

There have been timber harvest and road related failures along the northwest margin of the watershed. These failures occurred in the mudstone sequence of the Dothan Formation and delivered sediment to Hardtack Creek, and the unnamed drainage just north of Hardtack Creek (referred to as Snag Creek in the stream surveys).

The road and harvest related failures are 15 to 20 years old and occurred shortly after management activities. The major failures were a result of side-cast road construction. Through field review, it was determined that the majority of these side-cast fill failures have now stabilized and are not sources of major amounts of sediment.

Stream Flow

The North Fork of the Smith watershed receives approximately 100 to 150 inches of precipitation per year. 53% of the watershed is in the rain dominated zone (under 2500 foot elevation); 46% is in the transient snow zone (2500 to 4000 foot elevation, mostly in Baldface and Chrome Creeks); and, 1% is in the snowpack zone (along the Chetco Divide).

The three largest streams, North Fork of the Smith River, Baldface Creek, and Chrome Creek, show evidence of considerable stream power by the size and volume of sediment and large wood which they move. The gradients for these streams are for the most part under 3%, which is relatively low for mountain streams. Since the gradient is low, it can be concluded that stream power is a major component of high peak flows. Ultramafic soils are shallow and porous and occupy roughly half of the watershed. This contributes to the flashiness and power of these streams.

Timber harvest and road construction has occurred in the small tributaries along the western edge of the watershed. Stream flow patterns of the mainstem of the North Fork of the Smith River have not been affected by these activities. Timber harvest has occurred on less than 10% of the overall watershed, although the small tributary watersheds in the western portion have had a greater percentage of harvest. All of the subwatersheds have had less than 25% harvest, with the exception of "Snag Creek" where nearly 50% was harvested. Tributary stream flows may have been affected at first, but harvested areas have probably recovered hydrologically with regrowth of vegetation during the past 20 years.

Only 30 acres of harvest and fewer than two miles of road are in the transient snow zone, so this would not have contributed to effects of rain-on-snow events.

Road densities for the subwatersheds of the North Fork of the Smith are low, ranging from 0 to 1.1 mile per square mile (mi/sq mi). However, acres used to calculate densities include acres within unroaded face drainages. The four largest tributaries west of the North Fork of the Smith River have moderate road densities, up to three mi/sq mi for "Snag Creek".

Combined effects of harvest and roads may have contributed to increased peak flows of small tributaries in the past. Incised stream channels and scoured banks that are now vegetated indicate that peak flows may have increased following harvest.

Large Wood

The amount of vegetation potentially supplying large wood within the watershed varies by soil type. The mainstem of North Fork of the Smith, the upper half of Baldface, and most smaller tributaries are well-vegetated with large conifers. Ultramafic soils produce fewer trees per acre. This results in low amounts of large wood throughout Chrome Creek and in the lower half of Baldface Creek.

Stream surveys in 1980 report low amounts of large wood in the North Fork of the Smith River. This was hypothesized to be the result of 1964 high flows transporting the material downriver. Observations in 1993 and 1994 report adequate large wood, indicating that the system has recovered from 1964 losses.

Port-Orford-cedar is the primary conifer component of riparian vegetation in ultramafics and present in other soil types. It is vulnerable to the root disease, *Phytophthora lateralis*. If this disease spreads through the watershed in the future, large wood quantities could increase for a period of time, and then decrease.

Timber harvest along the western edge of the watershed has depleted some of the future large wood along small tributaries. About 10% of the stream length in North Fork Smith and Lower North Fork subwatersheds had adjacent harvest, depleting this portion of future large wood sources for 50 to 100 years. Young conifers are growing in the previously harvested riparian areas. Eventually, these trees will supply large wood to the tributaries, and presently, large wood in these tributaries is adequate.

Channel Morphology

Most streams in the North Fork of the Smith watershed have low gradients averaging two to three percent, with no anadromous fish barriers. These low gradients combined with high winter flows, ample sediment supply, and some large wood create productive pool/riffle morphology. Stream surveys note the abundance of pools. Terraces and floodplains border much of the length of both small and large streams, providing high quality riparian habitat for terrestrial species and winter (high water) habitat for aquatic species. Numerous inner gorge landslides deliver sediments of all sizes to the streams, but high winter flows transport much of the gravels and fines out of all but small tributaries.

Chrome Creek lies entirely within the Kalmiopsis Wilderness, and has had the least documented observation. The 1994 stream survey noted an average gradient of two percent and a cobble/gravel substrate, with some aggraded and braided reaches from landslide deposits.

Baldface Creek has many inner gorge landslides, with several identifiable activity periods. Aggraded and braided reaches extend downstream from these landslides, with primarily cobble/boulder size material. Baldface has pools ranging from the occasional large temporary pool caused by a landslide to small, numerous "pocket pools". Terraces and flood plains border one or both sides of most of its length. Baldface Creek has the most diverse habitat, with multiple landslides, broad flats and side channels, a high degree of sinuosity, and a few narrow gorges. However, there are low amounts of large wood in downstream reaches.

Some of the small tributaries on the west side of North Fork of the Smith River have been affected by timber harvest and road construction. These streams are aggraded by sediments, primarily gravels, although the 1980 stream survey of "Snag Creek" reported silt deposits and excessive woody debris. In all but the uppermost portions, which have very little flow, streams have cut channels through these deposits, sometimes at several elevations, providing both summer and winter habitat. This recovering condition was observed in Cedar, Hardtack, and Horse Creeks. The present condition of "Snag Creek" is unknown. Upper ends of these tributaries have subsurface flow through the deposits in summer. The lowest reaches of these tributaries, near the mouths, have cobble/boulder substrate.

Initially, the combined effects of clearcutting, tractor yarding, and road construction may have increased peak flows. This and the removal of vegetation from streambanks could have caused the small landslides and bank scour prevalent along harvested portions of these tributaries. Bank scour around logjams in these old harvest areas is still contributing small amounts of sediment to the small streams. In addition to streamside slides and bank scour, sediment trails lead from some of the older roads.

Timber harvest and roads in tributary subwatersheds have had no observed effect on the North Fork of the Smith River. It has a very stable channel, evidence of its tolerance to both natural and human-related disturbance.

Temperature

During low flow years, stream temperatures in North Fork of the Smith River and the downstream reaches of Baldface and Chrome Creeks are warm, approaching the tolerance limit for salmonids. The 7-day average maximum temperature in 1994, a low-flow year, was 78° at the mouth of Baldface Creek and 72° in North Fork Smith above Baldface. This is a natural condition that has not been affected by human activities. The lower two-thirds of Baldface Creek, nearly all of Chrome Creek, and a small amount of the lower North Fork Smith subwatershed are in ultramafic soils which support sparse vegetation for shading. Multiple landslides in the ultramafics also remove vegetation and widen the channel downstream, exposing the water to solar radiation. Although banks of the mainstem of the North Fork of the Smith are well-vegetated with a closed canopy of large conifers, the stream has a north-south orientation and a broad enough channel to be exposed to the sun during midday regardless of vegetation.

Timber harvest on small tributaries west of the North Fork of the Smith River removed stream shade from 10% of the perennial stream length in Upper and Lower North Fork Smith subwatersheds prior to 1975. Temperatures may have increased on some of these tributaries immediately following harvest. It is unlikely that this possible warming had any effect on temperatures in the North Fork of the Smith River due to the small summer flow they contribute. Tributary riparian areas have since grown in with hardwoods and are well shaded. Harvest since 1977 left riparian buffers. Measured spot temperatures in these tributaries in the 1990's are less than 58°.

Water Clarity and Chemistry

Water clarity results from the low amounts of fine sediments and organic matter in the streams. Turbidity following winter storms and landslides clears quickly. Chemically, the streams fed by groundwater flowing through ultramafics have a slightly basic pH.

No evidence of chemical effects of mining has been found. The large chromite mine near the mouth of Baldface Creek included a mill and settling pond constructed in 1951 to concentrate the low grade ore. The processing was mechanical and did not include chemical treatment or addition of chemical elements.

Fish Distribution and Biotic Factors

Southwest Oregon Province Relationship

Salmonid fish stocks using the North Fork of the Smith River are representative of other coastal Southwest Oregon Province stocks, which roughly occupy the area between Cape Blanco, Oregon and Cape Mendocino, California inland to the crest of the coast range. Most of these salmonids migrate to the ocean to take advantage of the abundance of food there. Where barriers to migration exist in streams, resident cutthroat and rainbow trout are found above the barriers. In most streams open to migration, a small resident trout population exists, presumably in proportion to the amount of food available year around to these fish.

Anadromous salmonids make up the majority of fish life in Southwest Oregon Province streams. The province supports runs of coho, chinook (spring and fall), steelhead (winter and summer), and anadromous cutthroat trout. Chum salmon stray into the rivers, but do not constitute reproducing populations.

Salmonid populations in the Southwest Oregon Province are believed to be in decline (Nielson, et al., 1991). The Oregon Department of Fish and Wildlife (ODFW) manages resident populations in Oregon and the California Department of Fish and Game (CDFG) manages California resident fish. Little is known of the history of the resident stocks; both state agencies are currently researching this. While numbers of individual resident trout may not be lower than historical levels, loss of endemic populations is suspected due to stocking of non-endemic populations for recreational fishing opportunities.

Anadromous fish in the Southwest Oregon Province are managed by the National Marine Fisheries Service (NMFS). Concern for anadromous stocks throughout the Pacific Northwest has prompted NMFS to conduct status reviews for all anadromous fish in the region. Two groups of fish occurring in the Southwest Oregon Province have been proposed for listing as Threatened under the federal Endangered Species Act by NMFS, Klamath Mountains Province steelhead and Northern California-Southern Oregon coho. Status reviews by NMFS have not been completed for the other species of anadromous salmonids in the region.

North Fork Smith Watershed

Fish in the North Fork of the Smith River have not been studied to any great degree, and this is a data-gap requiring future work. The North Fork of the Smith River watershed provides near-pristine spawning and rearing habitat for a highly productive fishery. Fall chinook, Klamath Mountains Province steelhead, anadromous cutthroat trout, resident rainbow and cutthroat trout use the watershed. The watershed appears to be an exceptional producer of anadromous cutthroat trout.

The distribution of these fish within the basin is not fully understood for all species. Fall chinook have been documented in eight miles of the mainstem, up into Horse Creek, and in the lower three miles of Baldface Creek. Habitat suitable for fall chinook for which presence has not been thoroughly confirmed includes the lower two miles of Cedar Creek, Baldface Creek above their known distribution, and the lower few miles of Chrome Creek. Steelhead and anadromous cutthroat trout have been seen along 10.6 miles of the mainstem, in the lower three miles of Horse Creek, 7.3 miles up Chrome Creek to its headwaters, 12 miles up Baldface Creek into its headwaters, and four and a half miles up Cedar Creek. Resident trout have been seen in Cedar Creek and Packsaddle Creek, above the suspected range of steelhead.

Of the fish-producing streams in the North Fork of the Smith watershed, Baldface Creek is remarkable in its variety of habitats and very high fish production potential. There are no known blockages to fish migration in the watershed. The upper limits of distribution for the various species are governed by gradient, flow, and intrinsic migration capabilities of the species.

Little is known about the aquatic, non-fish fauna of the watershed. Aquatic macroinvertebrates were collected above the mainstem and major tributaries in 1994. A report on their analysis will be available in late 1995 or 1996. Surveys from 1964 to present include incidental records of the regions more common invertebrates and herpetofauna. There are no records of rare or unusual aquatic species.

Based on the near-pristine nature of the fish habitat in the basin, population trends for fish in the watershed appear to be governed by forces outside the basin such as downstream migration habitat condition, ocean conditions, ocean and lower river commercial and sport angling, and intrinsic population cycles. NMFS has proposed listing Klamath Mountains Province steelhead as threatened, yet there is considerable debate as to whether the listing is biologically warranted.

Human Recreation Interaction

There is virtually no evidence of human recreational impacts on fish habitat in the watershed. Sourdough Campground, at the mouth of Baldface Creek, is the most heavily used area and there is no evidence of stream degradation at that site. Four-wheel-drive vehicles sometimes cross the stream at the mouth of Baldface Creek. This activity has not adversely affected the habitat suitability at this location to date. Angling pressure is believed to be very low due to the streams being inaccessible.

Information Needs: Additional fish distribution and population data need to be collected. A channel condition survey needs to be completed on Snag Creek.

Management Opportunities: The nature of the watershed, especially those directly influencing fish habitat should be maintained. Future activities should be critically reviewed for potential to significantly degrade habitat quality in the watershed.

Future sediment production can be minimized by continuing road maintenance of the existing road system or by decommissioning roads which will not be maintained in the future. Decommissioning roads may also improve the hydrologic recovery of the tributary watersheds where a greater percentage of timber harvest and road construction has occurred in the past.

Precommercial thinning of conifers in riparian areas of harvest units may help develop future recruitment of large wood. The thinning would promote the growth of the trees if they are in an overstocked condition.

TERRESTRIAL ECOSYSTEM

The following characterizations and key questions were developed to describe the terrestrial ecosystem of the North Fork Smith watershed. The soils and fire history of the watershed are two important factors in the vegetative composition and distribution which exist today. This vegetative composition and distribution directly influences the wildlife habitat of the watershed.

Vegetative Characterization

Roughly 50% of the North Fork of the Smith River watershed supports the unique plant communities associated with ultramafic-derived soils. Larger expanses of this soil type exist in the following subdrainages: upper Chrome Creek, the middle portion of Baldface Creek, Hardtack Creek, Cedar Creek, and Lemmingsworth Gulch. This soil type generally supports Jeffrey pine, western white pine, and knobcone pine on the drier, upland slopes and Port-Orford-cedar in the wet bogs and drainages. Brush species include huckleberry oak, coffeeberry, small leaf tanoak, labrador tea, and azalea. A diversity of smaller flowering plants are supported, many of which are endemic to the Klamath Mountain region. Plant growth is often slow and sparse due to a chemical imbalance in the soil. Potential fire behavior characteristics on these sites vary considerably, ranging from low to moderate, and are dependent on the amount of fine ground fuels available to carry a fire.

The other half of the watershed generally supports more dense vegetation on soils derived from Dothan sandstone and granite. Common dominant tree species are Douglas-fir and tanoak. Less common associates include western hemlock, madrone, and chinquapin. Stands dominated by tanoak create a mosaic in mix with those dominated by Douglas-fir. Large trees and late-seral conditions are concentrated in upper Baldface Creek, upper North Fork Smith River, and to a lesser extent upper Cedar Creek. An isolated area of western hemlock lies in the upper Baldface Creek area. Potential fire behavior in the Dothan-derived vegetation is likely to be of low intensity except under extreme dry and windy conditions. Under these conditions, fire behavior can be of high intensity.

Roughly seven percent of the Douglas-fir/tanoak vegetation has been altered through timber harvest, mostly on the west side of the North Fork Smith River. This limited timber harvest and the high-intensity burning by miners from 1850 to 1920 may have reduced the amount of late-successional forest to the low end of its range of natural variability, and hardwood stands may be near the top of their range (REAP Report, 1993). The south side of Baldface Creek and the areas west of the North Fork Smith River appear to be without recent fires. The human-caused Chrome Fire burned about 2,200 acres in 1990. Natural fire starts have been low in frequency. Encroachment to areas such as knobcone pine, meadows, and bogs, both serpentine and otherwise, is occurring at variable rates.

Wildlife Habitat Characterization

Late seral habitat (3,364 acres) accounts for roughly seven percent of the watershed. This late seral habitat is spread throughout the watershed, mainly along riparian zones as small isolated stands that are less than 500 acres. Mid-seral habitat (22,500 acres) accounts for nearly 43 percent of the watershed and is also primarily located within riparian zones. Interior forest habitat is limited to a relatively few stands throughout the watershed. Only three areas provide greater than 1000 acres of interior forest habitat. The remaining 50 percent of the watershed is composed of either early seral, pioneer, or non-vegetated habitats. These habitats are scattered across the watershed, primarily on ridges and midslope areas, and consist of brushfields, hardwood stands, and other non-conifer vegetation.

A few meadow areas are located within the watershed. These meadow areas account for less than two percent of the total watershed. They are important areas for native grass species and provide permanent forage for wildlife. All are located on or close to ridges. Other unique habitats in the watershed are springs, bogs, lakes, and rock outcrops.

Serpentine soil areas support unique plant communities, and the majority of the sensitive plant populations are located on this soil type. These soils also support a large number of fruit-bearing shrubs, such as coffeeberry, which provide important forage for wildlife.

Snag habitat is limited throughout the watershed. Due to the combination of ultramafic-derived soils and erratic fire history, large sized snags are not abundant. Past timber management activities left little to no wildlife snag habitat in harvest areas.

What are special and unique habitats in the watershed?

The Siskiyou Land and Resource Management Plan (LRMP, 1989) identified special and unique habitats as important areas for wildlife, and established standards and guidelines for management of these sites. Most special wildlife habitats are allocated as Management Area 9 (MA-9) by the Siskiyou LRMP. These sites are allocated as Administratively Withdrawn Areas (AWA) under the Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents Within the Range of the Northern Spotted Owl (ROD, 1994).

The first aerial photographs of the Forest were taken in 1939. As a result, 1939 can be used as a reference condition for special and unique habitats in the watershed.

Meadow/Serpentine Areas

Open meadow areas, including serpentine areas, are being encroached on by conifers and hardwoods. This encroachment has occurred for several decades, as indicated by the size of the encroaching trees. There are relatively few seedlings (less than 5 years) compared to trees in the 12 to 20 inch diameter breast height (dbh) size class. For example, in the North Packsaddle Meadow (MD-123), there are areas of encroachment with all tree sizes 8 inch dbh and up, with little or no evidence of seedlings. Native grass species dominating this meadow are *Festuca idahoensis*, *F. californicus*, *Danthonia californicus*, and *Elymus glaucus*, with a *Stipa* sp. and *Agrostus* sp. present to lesser extent. These native grasses are being shaded out by the encroaching trees. No exotic or non-native grasses are present. These populations of native grasses provide valuable current and future seed sources for the watershed.

Other meadows and open serpentine areas in the watershed have similar conditions. The 1939 aerial photos of the Packsaddle Meadows and vicinity shows more open meadow area and brush where there is currently conifers. In 1939, the only conifers present were along streams and north facing slopes. Historically, fires helped in maintaining these meadow and serpentine areas as early seral habitats. In the last few decades with the suppression of fires, the grasses or brush have become overgrown with other species, such as Douglas-fir.

These open meadow and grass serpentine areas are important in maintaining permanent forage areas for wildlife species, such as deer and elk. They are also important in maintaining habitat diversity across the landscape, even within the Late Successional Reserve (LSR) areas designated by the ROD. The 8 to 10 open meadows and serpentine grass areas account for less than two percent or approximately 1,000 acres of the watershed.

Information Needs: Inventories of meadow and serpentine areas within the watershed need to be completed to determine species composition and to determine conifer and hardwood encroachment.

Management Opportunities: Treatment of these meadow/serpentine areas, either by removal of encroaching trees and/or the use of natural and prescribed fire, is needed to return these areas to an open and early seral habitat condition similar to what existed in 1939.

Western Hemlock

An isolated western hemlock plant series in upper Baldface Creek offers a locally unique late seral structure. Hemlock provides understory and intermediate stand component for structure. Hardwoods may move into the same niche in stand structure if hemlock is reduced. This stand has likely been maintained by fire exclusion on the north slopes of the southwest portion of the Baldface Creek drainage, and by a western marine climate influence. It is largely surrounded by serpentine soils, which do not support hemlock, thereby isolating this plant community from other seed sources of hemlock.

The objective is to maintain this unique plant series in upper Baldface Creek, and its role in late seral stand structure.

Management Opportunities: The western hemlock stand can be maintained by fuels reduction around and within the stand. This can be accomplished with low intensity fire. Fire should be excluded from the stand if low intensity fire cannot be maintained. Other measures promoting western hemlock include allowing seed bed disturbance that favors regeneration of hemlock, and favoring hemlock in any thinning to promote late-successional habitat.

Springs/Bogs/Lakes

Four to six small (one to two acre) lakes occur throughout the watershed. Most of these are located in the Baldface Creek and Chrome Creek subwatersheds. The most prominent bog in the area is located in the proposed Lemmingsworth Gulch Natural Research Area on the Sourdough Camp trail. Smaller bogs and seeps are scattered throughout the watershed and are usually associated with serpentine soil areas. These areas currently do not need any maintenance.

Other Special/Unique Habitats

Rock outcrops and hardwood stands are present throughout the watershed. Rocky areas provide habitat such as denning sites, talus, caverns/crevices, and territorial marking sites for a variety of animals. These areas currently do not need any maintenance.

Approximately 3000 acres of hardwood stands provide habitat for early and mid-seral associated species of wildlife, such as deer and neotropical migratory birds, by producing mast crops (acorns) and a closed canopy. These stands are important in maintaining habitat diversity across the landscape, even within the Late-Successional Reserve. Historically, most brush and hardwood stands were maintained as early or mid-seral habitat by periodic low intensity fires or by less frequent, spotty, high-intensity fires. Due to increased high-intensity burning from miners from 1850 to 1920, the amount of hardwood stands may be at the top of the range of natural variability (REAP Report, 1993).

Information Needs: Determine locations and acres of pure hardwood stands in the watershed. Determine where a higher conifer component would be desirable to form larger amounts of interior forest habitat.

Management Opportunities: Hardwood stands, like serpentine areas, will require low intensity burning for protection from conifer encroachment. A higher conifer component may be desirable in the minority of hardwood stands that could form larger amounts of interior forest habitat. Thinning or clearing areas of hardwoods and planting or releasing conifers could be accomplished in these areas.

What are the locations and risk of spread of noxious weeds?

Noxious weeds, mainly scotch broom, bull thistle, and tansy ragwort, have been introduced into the watershed along roads. As road density in the watershed increased from the 1960's to the 1980's, the populations of the weeds probably also increased.

Currently, almost all roads in the watershed have one or more of the species associated with them. Some roads have extensive weed populations (1107, 1107220, 1107330), while others have small isolated populations (1107180, 1107290, 1107334). No noxious weeds were detected when surveys were completed on roads 1107221, 1107271, 4402206, 4402112. Most infestations currently are limited to the road surface and prism where ground disturbance has occurred.

Noxious weeds, especially scotch broom, establish easily and quickly on disturbed soil sites, and over time will crowd out native vegetation. Scotch broom is currently limited to the 1107 road. All three plants mentioned can be spread by windborne seeds, or mechanically by vehicles picking up pieces of plant with seeds and carrying them to other areas.

The following list provides more detailed information on which species of weeds inhabit which roads:

No known noxious weeds:	1107221, 1107271, 4402206, 4402112
All three species (scotch broom, bull thistle, tansy ragwort):	1107
Tansy only:	1107180, 1107334
Tansy/thistle:	1107190, 1107220, 1107270, 1107290, 1107293, 1107330
Problem roads:	1107, 1107190, 1107220, 1107290, 1107293, 1107330

Information Needs: Noxious weed surveys need to be completed on roads 4402 and 4402450.

Management Opportunities: Treatment of infested areas is needed to reduce, control, and/or eliminate the further spread of these plants in the watershed. Treatment opportunities include cutting, pulling or burning noxious weeds, closing roads, cleaning heavy construction machinery before and after work at construction sites, using only "clean" fill material, and using only certified weed-free hay. Ripping of roads in contaminated areas should be evaluated. Control methods are limited for thistle and tansy because of their wide distribution. Reduction of soil disturbance and biological controls will help control the population of tansy ragwort.

What risk does each road in the watershed present in spreading Phytophthora lateralis?

Port-Orford-cedar is abundant in large uninfested areas, including upper Chrome and Baldface Creeks. There are four roads that present a potentially high risk of spread of the root disease fatal to Port-Orford-cedar, Phytophthora lateralis: 1107220, 4402112, 4402450, and 4402494. Since the disease was introduced into the natural range of Port-Orford-cedar in the 1950's, spread has slowed, but it still shows the capability of being introduced to isolated, high-risk locales.

The risk assessment matrix below, is taken from the interregional Port-Orford-cedar disease control strategy format. This matrix and the miles of uninfested stream are used to define high, moderate, or low risk levels.

PROXIMITY OF POC TO ROADS (HAZARD)			
Percent POC (Impact)	LOW >500 feet below >50 feet above	MODERATE 100-500 feet below >50 feet above	HIGH <100 feet below <50 feet above
LOW (1-5%)	LOW RISK	LOW RISK	MODERATE RISK
MODERATE (5-20%)	LOW RISK	MODERATE RISK	HIGH RISK
HIGH (>20%)	MODERATE RISK	HIGH RISK	HIGH RISK

The following list shows the roads in the watershed that have Port-Orford-cedar within 500 feet of them, their risk rating, and the miles of uninfested stream containing Port-Orford-cedar below each road. Roads are listed in order of highest risk first.

Road #	Risk Rating	Ranking	Miles of Stream	% POC on Road
4402112	High	1	7.0	0-40
4402450	High	2	7.0	0-20
4402494	High	3	6.0	0-20
1107220	High	4	4.0	0-40
4402206	Moderate	5	3.5	0-5
19N014WD (Sec15)	Moderate	6	3.0	0-5
1107270	Low	7	2.0	0-5
1107180	Low	8	3.5	None
1107190	Low	9	3.5	None
1107spur (Sec.8)	Low	10	3.0	None
1107290	Low	11	3.0	None
1107291	Low	12	3.0	None
1107293	Low	13	3.0	None
1107294	Low	14	3.0	None
1107330	Low	15	3.0	None
1107332	Low	16	3.0	None
1107334	Low	17	3.0	None

Conflicts exist between traditional wet season vehicle users and Port-Orford-cedar closures. The 1107220 road currently has a seasonal closure in place. Break-ins have been frequent but have subsided since law enforcement efforts increased. A tank trap may be selected in place of the gate if vandalism recurs. 4402112 has a tank trap closure in section 24 and a seasonal gate closure at its start that have been frequently violated. Reinforcement of these closures (redigging tank trap, stronger lock box on gate, vandalism reward sign) is taking place to reduce risk. Education of All-Terrain-Vehicle (ATV) users occasionally accessing Baldface Creek on 4402494 is needed to further reduce risk. A closure to ATV's is an alternative but enforcement is difficult.

A few dead Port-Orford-cedar have been located in lower Fall Creek and Cedar Creek, but disease is not evident. Risk ratings for roads near these creeks may change if disease is present and reaches the stage for detection. Mortality may be due to drought or competition.

In general, the risk of disease introduction is lowered by the relatively small amount of traffic in the watershed. However, this risk is increased by the high percentage of four-wheel-drive vehicles and motorcycles that more commonly carry mud, by wet stream crossings on routes that may dislodge mud or activate water-borne spores, and by concentrations of Port-Orford-cedar along routes. The consequences of disease introduction are high due to the amount of uninfected Port-Orford-cedar at risk both on routes and downstream.

Most roadside disease sources are relatively long distances away. The nearest roadside disease sources exist at the head of Diamond Creek (road 4402), along roads in the Middle Fork Smith River drainage (including route 199), and along roads and driveways within the Crescent City and Brookings area. Distance between disease sites and high-risk stands of Port-Orford-cedar, as well as wet season closure by snow or high water levels, seems to reduce the risk of disease spread. However, while higher risk seems to lie in intensive activity such as unwashed heavy equipment operation, general road traffic can introduce the disease over long distances. Mud has been observed to stay on vehicles for trips over 30 miles, including 15 miles of four-wheel drive road.

Information Needs: Monitoring to determine presence of infection needs to be completed along Fall Creek below the 4402206 road, the North Fork Smith River near the confluence of Cedar Creek, and a small drainage along the 4402 road near the North Fork Smith River.

Management Opportunities: Possible prevention techniques which could be used to minimize the spread of Phytophthora lateralis include: cutting Port-Orford-cedar from the edges of roads; closure of roads; cleaning equipment before any operations; restrict uses of the roads to dry season; use uninfested water in firefighting and other activities; and place a lift of rock at one or two infested road sites (4402 road).

Where are snags and large down wood lacking in upland habitats?

The Siskiyou LRMP standard and guideline 4-13 addresses specific management standards and guidelines for maintaining a 60 percent habitat capability for woodpeckers (LRMP, IV-33 to 36). Wildlife tree (snag) habitat is important in providing habitat for cavity-nesting species. Woodpeckers are primary cavity nesters and are indicators for managing for snag habitat capabilities. By providing enough snag habitat for certain species of woodpeckers, such as pileated, hairy, or acorn, the habitat requirements of other species will be met. In addition to snag habitat, wildlife habitat requirements for large down wood provide not only suitable habitat for small terrestrial wildlife species (salamanders and rodents), but also provide for long-term soil productivity.

Large hardwoods, conifers, snags and large down wood are at reduced levels in unmanaged stands and managed stands. Snags and large down wood were not left in the 1,863 acres where timber harvest occurred from 1959 to 1987. Standards and guidelines for snag and large down wood retention were developed in 1987. No timber harvest has occurred in the watershed after 1989. The table below illustrates acres of harvest and numbers of snags left in units:

PRE 1987 ACRES/SNAGS	1987-88 ACRES/SNAGS	1989 ACRES/SNAGS
1,517/0	154/154	192/384
TOTAL ACRES MANAGED STANDS:		1,863 *
TOTAL NUMBER OF SNAGS IN UNITS:		538
PERCENT BIOLOGICAL CAPABILITY:		28.8%

* Excludes 359 acres of brush patches.

Natural stand conditions lack large trees, snags, and down wood, except in riparian areas. This is due to stand replacement fires that occurred during historical times, serpentine soil types, or plant series association. This may account for a lower habitat capability within the watershed than what may occur in adjacent watersheds. For example, the Winchuck watershed has a higher snag component in stands due to lack of fires and serpentine soils.

Information Needs: Snag Habitat Capabilities for each subwatershed need to be determined.

Management Opportunities: If it is determined that the subwatershed is below 60% habitat capability for cavity-nesting species, then it can be determined if the number of snags and large down wood can be increased. In some areas, the lack of snags and large down wood can be compensated for by creating these two habitat components from suitable trees in areas surrounding managed stands. Snags and down wood could be created by topping trees. The number that need to be created would correspond to those that were not left in the adjacent managed stand. For instance, if no snags are present in the managed stand, then 2.5 snags per acre could be created in the adjacent area in order to bring the snag habitat capability of the area up to the 60% biological capability. If one snag per acre is present, then 1.5 snags per acre could be created in the adjacent area.

Additional snags may be created to provide large down wood material. Those snags created by the removal of tops either by mechanical or explosive means, would provide immediate large down wood in the form of the tree tops, and future down wood material when the snag falls after natural deterioration processes.

What are the proposed endangered, threatened, and sensitive (PETS) species:

From what is known about PETS wildlife species in the watershed, it appears they are limited in comparison with other watersheds. Spotted owls have been recorded on less than 5 sites. Wolverines have been reported in the Chrome, Baldface, and Hardtack Creek subwatersheds. Common and California mountain kingsnakes have been documented in the wilderness. Plecotus (big-eared bats) are suspected due to suitable habitat present. Other PETS wildlife species are not expected to occur in the watershed due to lack of suitable habitat.

The watershed has been designated a Late-Successional Reserve for northern spotted owl and late-successional related species (ROD, 1994). However, due to historical fires, serpentine soils and habitats, and non-late-successional plant associations within the watershed, late-successional habitat now, and in the future, will account for less than 10 percent of the total watershed. As a result, a strong population (10 or more pairs) of spotted owls may never be supported throughout the watershed. Of the late-successional habitat which does exist, the mainstem of the North Fork Smith and the Horse Creek drainages contain the most in the watershed.

Several species of sensitive plants have been sighted in the watershed. Several locations of *Arabis macdonaldiana*, *Cypripedium californicum*, *Hieracium bolanderi*, *Gentiana setigera*, and others have been found. This watershed will continue to support populations of sensitive plants due to the abundance of serpentine soils and favorable habitat conditions. The following table is a list of known Siskiyou Forest sensitive species in the North Fork of the Smith watershed. These species occur mainly in the Baldface Creek, Hardtack Creek, and the proposed Lemmingsworth Gulch Natural Resource Area and are associated with wet and dry serpentine areas.

Scientific Name	Common Name	Listing
<i>Arabis macdonaldiana</i>	McDonald's rock cress	C-2
<i>Calochortus howellii</i>	Howell's mariposa lily	C-2
<i>Cardamine gemmata</i>	Purple toothwort	C-2
<i>Cypripedium californicum</i>	California lady'slipper	watch
<i>Darlingtonia californica</i>	California pitcher plant	watch
<i>Dicentra formosa</i> ssp <i>oregana</i>	Oregon bleeding heart	watch
<i>Epilobium rigidum</i>	Rigid willow-herb	sensitive
<i>Eriogonum pendulum</i>	long-stalked eriogonum	watch
<i>Eriogonum ternatum</i>	Waldo eriogonum	watch
<i>Gentiana setigera</i> (<i>bisetata</i>)	Waldo gentian	C-2
<i>Hieracium bolanderi</i>	Bolander's hawkweed	sensitive
<i>Lilium bolanderi</i>	Bolander's lily	watch
<i>Lilium vollmeri</i>	Vollmer's lily	watch
<i>Lupinus tracyi</i>	Tracy's lupine	sensitive
<i>Microseris howellii</i>	Howell's microseris	C-2
<i>Monardella pupurea</i>	Siskiyou monardella	sensitive
<i>Poa piperi</i>	Piper's bluegrass	sensitive
<i>Sanicula peckiana</i>	Peck's snaketooth	watch
<i>Streptanthus howellii</i>	Howell's streptanthus	sensitive
<i>Thlaspi montanum</i> var <i>siskiyounese</i>	Siskiyou candytuft	watch
<i>Triteleia laxa</i>	triplet lily	sensitive
<i>Vancouveria chrysantha</i>	yellow vancouveria	watch
<i>Viola lanceolata</i>	western bog violet	sensitive

Note: C-2 stands for Category 2. This is a list where more information needs to be gathered prior to listing as "proposed as threatened" under the Endangered Species Act.

Information Needs: Determine which stands should be treated to provide improved structure and provide potential spotted owl habitat.

Management Opportunities: Improve structure of stands to develop potential spotted owl habitat by thinning, creating snags and down logs. Avoid disturbance to PETS sites and/or individuals. Maintain known sensitive plant sites. Use prescribed fire in serpentine areas and mid to late seral habitats to maintain these habitats.

Which stands need treatment to improve late-successional and interior forest habitat?

Due to the high-intensity burning from miners from 1850 to 1920, and limited timber harvest on the western edge, the amount of late-successional forest may be at the low end of its range of natural variability in the watershed (REAP Report, 1993).

Approximately half of the watershed has stands which are in pioneer or early seral structure stage. These stands lack the habitat components (large down wood, trees greater than 20 inch dbh, snags greater than 20 inches, multilayered canopy, etc.) necessary for development of late-successional seral habitat. Late-successional habitat now, and in the future, may account for less than 10 percent of the overall habitat in the watershed. This is due to habitat component requirements and the inability of the soils to produce these types of habitat. The following table illustrates current seral stage types, acres, and percentage of watershed:

STRUCTURAL STAGE:	ACRES PRESENT:	PERCENT OF WATERSHED:
GRASS/PIONEER	6,421	12.4%
EARLY SERAL	19,410	37.5%
MID SERAL	22,501	43.5%
LATE SERAL	3,364	6.6%

Acres taken from Pacific Meridian Research (PMR) database using U-Tools model.

Mid and late seral habitats account for 50 percent of the watershed distributed in small patch sizes throughout. These older forest patches are not functioning as interior forest habitat because of small patch size and edge effect. This was determined by analyzing the watershed for interior forest habitat patches that were greater than 200 acres in size using the FRASTATS program.

There are 12 patches of habitat which meet mid and late successional habitat criteria. Of these 12, there are four patches which do not function as interior forest habitat due to a core area of less than 100 acres in size. These patches consist mainly of edge habitat and do not provide enough core area for interior forest habitat. Of the remaining eight patches that have core areas of 100 acres or more, there are three patches which provide large (greater than 1,000 acres) core areas of suitable habitat for northern spotted owl and late-successional related species. These areas are more or less connected to one another and form a larger habitat area.

The other smaller patches of interior forest habitat are spread throughout the watershed as individual patches. For these small patch areas, there may be opportunities to develop adjacent early or mid seral stands into late seral habitat and increase the amount of interior forest habitat.

Information Needs: Identify other stands adjacent to mid or late seral patches which may be developed into late seral habitat. Locations and percent per subwatershed would need to be determined.

Management Opportunities: There are approximately 177 acres of the 2,222 acres of managed stands that are currently overstocked beyond 500 conifers per acre. Precommercial thinning was planned in these units prior to designation of the Habitat Conservation Area in 1989. Three of these units, North Fork Smith U-2 (56 acres, road 1107270), Red Horse Oak U-1 (43 acres, road 1107290), and Horse Creek U-2 (42 acres, road 1107290), lie in priority areas for expanding the existing core habitat area on the upper west side of the North Fork Smith River. These units would be top candidates for precommercial thinning in Late-Successional Reserve.

Priority is based on a PMR map showing location of managed stands, late seral habitat, and crown closure greater than 70%. Another 387 acres were harvested in 1988/1989 and are candidates for thinning or release in the next decade or two. Eight units, Smiths Horse U-1,2,5, Knapsack U-3, and Bear Wallow U-5,6,7,8, lie in priority sites to expand the same core area.

What is the fire history of the North Fork Smith watershed and what is the future role of fire in the watershed?

Fires during prehistoric times were caused by lightning and Native Americans. Native Americans set fires to enhance forage for the game which they hunted, to stimulate growth of plant species used for food, and to clear areas for travel. Open meadows were likely maintained in this fashion. When miners moved into the watershed in the late 1800's, they set fires to help their exploration and mining operations. These fires were allowed to burn, with weather and terrain features being the only factors that affected the spread and intensity.

Historically, several large fires burned in the watershed. Of the six fires that reached 250 acres or greater in size, four were human-caused and two were caused by lightning. The most recent human-caused fire was the Chrome fire which burned in 1990 and was caused by a camper. The previous human-caused fires were started by miners. There are eight documented lightning fire starts within the watershed, with only two growing to a significant size.

The following list gives a more complete description of historical fires in the watershed. Records begin in 1910.

Year	Cause for Fire	Location in Watershed	Acres
1910	human	Sourdough Camp	less than 10
1913	14 human	Vicinity of the old McKee mine	less than 10 each
1915	human	Upper Cedar Creek drainage	approximately 575
1917	human	between Baldface Creek and Franz Meadow	approximately 1850
1917	human	North of Baldface Creek to the ridge top northeast to Spokane Creek, and an area west of the North Fork	Approximately 5000 to 6000
between 1934 and 1937	lightning	Drainage east of Acorn Creek	Approximately 1000
between 1934 and 1937	lightning	Sourdough area, south of Baldface Creek	Approximately 250
between 1934 and 1937	human	Sourdough Camp	Less than 10
1941	6 of unknown cause	5 on south face of Baldface Creek drainage and 1 in the headwaters of Horse Creek	Less than 10 each
1943	unknown cause	headwaters of Taylor Creek	Less than 10
1944	lightning	unknown location	Less than 10
1956	2 lightning	unknown location	both about 20 each
1976	human	unknown location	11
1980	lightning	unknown location	21
1985	lightning	near the end of the 1107270 road	less than 10
1990	human	near the end of the 1107276 road	less than 10
1990	human	Chrome Creek	2200

Fire cycles west of the Cascade mountains are estimated to be considerably longer than those east of the Cascades, particularly northeastern Oregon. The effects that fire exclusion has had on current forest conditions in northeastern Oregon can be used as an example of what may occur in southwestern Oregon, but on a much longer timescale.

Fire suppression has been effective in the last 50 years, and areas that were historically and prehistorically burned for human needs are being encroached by surrounding vegetation. Also, unique native plant species dependent on the return of fire are receiving competition from other species, and sometimes non-native vegetation.

During this fire suppression period, fuels on the forest floor have accumulated. Continued suppression may cause an "unnatural" build up of fuels, resulting in a greater proportion of high-intensity fires when an area finally burns. The natural cycle of fire in the watershed is over 300 years. As a result, the watershed is not yet out of balance with that cycle. However, the stage is being set for extreme fire behavior and stand replacement events if fire continues to be excluded from the watershed.

The watershed, exclusive of the wilderness, is comprised entirely of land allocations where pre-planned suppression strategies and acre objectives are set to control fires at 30 acres or less 90% of the time. For Late-Successional Reserves (LSR), the standards and guidelines emphasize the prevention of loss due to large-scale fires particularly stand replacement disturbances. It is possible that if a fire occurs in the next decade, and weather and fuel conditions are such that the fire burns with a lower intensity, the forest could benefit from the event and the values associated with LSR will remain intact. However, if such fires are suppressed at early stages, these types of benefits would be precluded. If several decades of fuel build-up on the forest floor is allowed to occur and a major wildfire event occurs under extreme weather conditions, then a stand replacement disturbance is likely to be the result.

Information Needs: Determine if fire exclusion has contributed to the degradation of certain plant species and unique habitats. Identify areas and habitats where the return of fire would provide a benefit, and what intensities would provide that benefit.

Management Opportunities: Complete fire management plans to allow prescribed fire to achieve resource objectives of special and unique habitats, Late-Successional Reserve and other land allocations.

Are there areas, outside of the Kalmiopsis Wilderness, where the Kalmiopsis Prescribed Natural Fire (PNF) Plan can be extended beyond the boundaries determined in the plan?

Fires started by lightning and originating within the Kalmiopsis Wilderness may be allowed to burn if weather conditions, staffing requirements, and other conditions established by the PNF Plan are met. While the wilderness boundary has been established as the the PNF boundary, the plan recognizes that there is the possibility that a PNF may burn beyond this point. These situations will be addressed for each event by the establishment of a Maximum Allowable Perimeter (MAP). The establishment of the MAP will consider the potential resource benefits and degradation that would be caused by fire, along with the ability to contain the fire within the area outside of the wilderness.

The majority of the Wilderness/PNF boundary, within the North Fork of the Smith watershed, is located along topographical features that would generally require a fire of moderate to high intensity to predictably escape its boundary. Erratic fire behavior such as spotting or fuel conditions which allow active downhill burning could precipitate such an escape. The Silver Fire of 1987 entered the Kalmiopsis under similar, if not more explosive, burning conditions. Fires burning under these conditions would generally exceed the fire intensity levels allowed by surrounding land allocation standards and guidelines.

The Kalmiopsis PNF Plan could allow a low intensity fire to burn the Late-Successional Reserve (LSR) areas surrounding the wilderness, once site-specific prescribed fire plans for the LSR's have been completed. Prescribed fire in Riparian Reserves would be more difficult to implement than in the LSR's. This is due to the number and scattered locations of the Riparian Reserves across the watershed. Fires burning in the wilderness under the PNF Plan will probably be of higher intensities than allowed for under standards and guidelines of LSR's and Riparian Reserves.

The PNF Plan has provided for management-ignited prescribed burning in the Wilderness to aid in the reduction of risks and consequences of a lightning caused fire escaping the wilderness under conditions not acceptable in surrounding land allocations.

Management Opportunities: Fire management plans should be written for LSR's and other land allocations addressing areas and conditions for which the MAP could be extended into these land allocations. It could also address when and where management-ignited prescribed fire could be applied to reduce fuel loadings/intensities in those areas.

SOCIAL ASPECTS

The following characterization and key questions were developed to describe the past, present, and potential future human uses of the North Fork Smith watershed.

Cultural Characterization

The North Fork Smith watershed is characterized as a dynamic landscape where the interactions between natural and human forces have shaped the human use of the area. This interaction has also resulted in the configuration of plants, animals, river terraces and even the course of the river today. Flat, open land, preferred for human use, is especially limited within the watershed. Where it does occur, along river and streamcourse terraces and along some of the broader ridge tops, slopes range from 4 to 15%. More commonly, the steep slopes of the mountains, some as high as 4,600 feet in elevation, come right down to the watercourses. While topography has placed limits on the prehistoric and historic use of the land, the geology has provided an economic substitute in the form of mineral deposits in the mountains and gravels along the streams.

In general, mankind has only made minor intrusions within the watershed. The land provides plant and animal resources which have influenced human use in this area. There is a large variety of vegetative types which provide diverse economic and edible plant products. The mountains provide a home to various large and small mammals, and the North Fork Smith and its major tributaries are a rich fishery. Prehistorically, the river corridors were used as resource procurement areas dealing with shell and anadromous fishes. In historic times, the lure of mineral wealth attracted people to this rugged land.

The prehistory and history of the analysis area are treated in Stephen Beckham's Cultural Resource Overview of the Siskiyou National Forest (Beckham, 1978). Additionally, Bancroft and Wallings have compiled general histories of the region, and fragmentary local histories exist in the form of oral histories, family journals, manuscripts and photo collections.

What were the prehistoric uses of the North Fork Smith watershed?

The archeological and ethnographic information relating to the watershed is scant, but growing. Most archeological and anthropological research has focused on areas outside of this watershed.

The archeological record attests to a continuous human occupation of Southwest Oregon for at least the last eight thousand years. Excavations carried out near the mouth of the Illinois River at the Tlegetliten site (35CU59, Tisdale, 1986) and at the Marial site (35CU84, Griffin, 1983) on the Rogue River have established dates of occupation at 8000 to 9000 years before present. Human adaptations in southwest Oregon appear to have changed from a moderately mobile, hunting-gathering lifestyle to more sedentary, specialized economies. These changes are likely to have been influenced by the effects of population displacement and growth as a result of changing climates and environments in southwestern Oregon as well as in other areas.

Ethnographically, the Tututni are representative of populations that inhabited southwestern Oregon from A.D. 300 to historic times. These Native American groups consisted of several groups each of which spoke a different dialect of the Athapaskan language and each having its own name. Collectively these Athapaskans are referred to as the Tututni or Coast Rogues.

These peoples inhabited much of southwestern Oregon from the beaches to the upland forests. They occupied the region from south of Bandon, Oregon to northern California and extending up the major drainages like the Smith, Chetco, Pistol, and the Rogue Rivers. The bands were numerous and the locations diverse.

The watershed was utilized by one or two Tututni bands. According to an 1854 map compiled by J.L. Parrish, Indian Agent for the Port Orford District, the Has-on-tas occupied the area surrounding the Winchuck River and south to approximately the California border. Their main villages were located at the mouth of that river. The Tolowa, another Athapaskan speaking band, were their neighbors to the south. The Tolowa villages were located at the mouth of the Smith River, around Lake Earl and along Crescent Beach. The inland extent of the band's territories is unknown, but it is probable that both used the watershed.

The general pattern of Tututni settlement indicates that large winter villages, containing 50 to 150 individuals, were established along coastal areas, rivers and major streams. Houses constructed at village settlements were substantial, consisting of semi-subterranean structures with bark or plank walls and roofs about twelve to sixteen feet square.

Generally, the Tututni were hunter-gatherers, subsisting on a diet consisting primarily of salmon and acorns and supplemented by a variety of game and collected food items. A seasonal round of activities was practiced which is characterized by dispersed, small task-specific groups utilizing the upland areas during the spring and summer months. These hunting and gathering groups would traverse the upland areas in search of game, plants, nuts, berries and other raw materials. Temporary camps in the uplands consisted of grass covered, brush or animal hide shelters. Fall signalled the time for communal fishing and acorn gathering and the occupation of winter villages by multi-family groups. In winter, these people would subsist largely on stored resources collected during the summer and fall.

Although few prehistoric sites have been found within the watershed, those sites and isolated finds that have been located are representative of the common upland site types found in the Siskiyou National Forest. These include temporary campsites related to hunting and gathering activities, sites where the procurement of raw materials for the production of stone tools was the focus of activity, a possible village site and trade and travel routes. Sourdough Camp, meadow areas such as Frantz Meadow, major dividing ridgetops such as the Chetco Divide and the dividing ridge between Chrome and Baldface Creeks, and riverine terraces on all major watercourses are primary locations.

Differences in culture, lifestyle and economic subsistence between the native peoples and the newly arrived Euro-americans inevitably led to conflicts, a pattern repeated throughout the history of this country. The year 1856 marked the sunset of the era of Native American dominance in the area. By the end of the Rogue Indian Wars in 1856, the remaining population of aboriginal people, with the exception of the Tolowa people, had been removed to the Grand Rhonde (grand round) and/or the Siletz reservations. Some individuals escaped relocation or were allowed to return to their homelands, mainly because of intermarriage with the white settlers. The Tolowa people did not join in the wars and their descendents remain today at the Smith River rancheria.

Glimpses of these people and their way of life have been made known to us through ethnographic information, the journals and manuscripts of the early white explorers and settlers, records and accounts from the Rogue Indian Wars and the archaeological record as it pertains to the Northwest Coast Culture area. The ethnographic information that exists for these people was acquired from research conducted at Siletz and the Smith River rancheria. However, by the time the interviews or ethnographic sketches were compiled in the late 1800's and the early part of this century, most sources of information were already a generation removed from tradition.

Management Opportunities: Cultural resource surveys will precede all ground disturbing projects. All sites discovered will be documented and added to the Forest inventory. The significance of inventoried sites shall be evaluated for eligibility for the National Register of Historic Places. Suitable cultural resource properties may be interpreted for recreational use and educational benefit of the general public.

What were the historic uses of the watershed?

The historic period in this portion of southwestern Oregon begins as early as the 16th and 17th centuries with the voyages of the Spanish explorers. The earliest recorded contact between the coastal natives and Europeans is noted in the log of Captain George Vancouver in 1792. Within the next quarter century trappers and traders, including North West Company fur trader Peter Corney and an American party of trappers led by Jedidiah Smith, appeared in southwestern Oregon. Russian traders and whaling ships of various nations also had contact with the native people on this portion of the coast.

Some of the first permanent Euro-american settlers in the area were miners attracted to the region during the gold rush era. In 1849 gold was discovered at Sutter's Mill in California and miners flocked through this area following the California-Oregon Trail. Very quickly, the richest gold producing areas of California were claimed and late-coming prospectors spread out into the surrounding country in their quest for gold. Early prospectors left little of the local country unexplored and, in 1851, the first discovery of gold in Oregon occurred on Josephine Creek. Other gold strikes were soon to follow. Gold was first discovered on the coast at places like Whiskey Creek and Gold Beach, named for the gold rich, black sand deposits found there. Later, gold deposits were found in the Rogue River. Some exploration of the North Fork Smith watershed likely occurred at this time. A placer gold site is reported at the mouth of Spokane Creek, a tributary of Baldface Creek.

Mining is the most visible of the historic activities which occurred within the watershed, lasting from the end of the nineteenth century through the 1950's. Although temporary in nature, this industrial development was significant in the history of the North Fork Smith watershed. Many of the sites within the watershed are related to prospecting and the mining of precious metals. Large mining districts were established within the Kalmiopsis Wilderness and their associated activities and impacts are still visible today.

Mining activity increased after the turn of the century. Evidence of hydraulic mining, probably for gold, has been reported on Spokane Creek. The McKee Mine, also on Spokane Creek, existed from about 1915 through 1936 although it is doubtful that the mine was in operation during that entire period. The Baldface Nickel Mine is also in the same area. Cabins and associated mining features can be found throughout the watershed.

During World War I, the Federal Government began offering incentives for mining strategic minerals such as chrome. The Sourdough (Baldface) Mine located in The Oaks area was first worked in 1918 for chrome deposits. The mine was in operation again from 1941 to 1943 by the Rustless Mining Company who constructed a mill at the mouth of Baldface Creek. The mine was also in operation from 1951 to 1958.

Following or accompanying the prospectors were the early settlers. Settlement in southwestern Oregon began in the mid-nineteenth century and continued into the 1950's (Beckham, 1978). The removal of the native inhabitants opened the area to settlement. Early settlers and miners moved into the area often building their houses on the same river terraces that had provided homes for the native inhabitants.

Most people followed a subsistence oriented lifestyle making maximum use of available fish and game supplemented with produce grown and animals raised on small farms. Goods and services were traded, borrowed and scavenged. Population densities were and remain low. Cash earning opportunities were limited with small scale mining, the raising and sale of livestock, packing, and the sale of fish providing some income to the local residents.

The remoteness, difficult access and the absence of arable or grazing land in the North Fork Smith watershed precluded extensive development. No homesteads are known to exist within the analysis area.

The Siskiyou National Forest was established on October 5, 1906. Henry Haefner, an early forester in the area states, "In 1909 the National Forest area was about as the indians had left it. Nothing of importance had been done to improve the property or even find out what it contained in the way of timber or other natural resources." He also mentions the reaction of the local populace to the establishment of the National Forest. "Many people were not in favor of the new order in the management of part of the public domain which the National Forest ushered in. They were not used to regulations of any kind nor did they want any."

The early foresters duties included mapping, estimating the amount of timber and agricultural land, law enforcement, fire protection, as well as a multitude of other jobs involved with the administration of a large timberland. The rangers often built their own stations and headquarters. Within the watershed analysis area is Sourdough Guard Station, located at Sourdough Camp. This Forest facility first appears on the Siskiyou National Forest map of 1915.

Forest Service lookouts were the most obvious symbol of the new attitude towards fire detection and prevention. The lookout not only served as the spotter of wild fires, he was often the "first line of defense" in fighting the fire he may have spotted from miles away. During World War II lookout towers with a view of the coast were occupied around the clock for the entire year of 1942 in defense of the nation against attack from the air. The Chetco Peak Lookout, on the northern end of the watershed, was built in 1936 and remained in service until the mid-1950's.

An important component of the historic fabric of the analysis area is the trail system. These transportation corridors were the first, and in some cases are still the only, travel routes within the watershed. Many of these paths followed older aboriginal routes. "Chief" Elwin Frye identified the Chetco Divide Trail #1210, as an Indian travel route. Frye was a packer for the Forest Service and the grandchild of early Rogue River settlers John and Adeline Billings. Adeline, also known as Kov-rhom-nic-ef-sho-pete or Krum-ket-tika ("a flower growing in any place") was a Shasta Indian from Scotts River in California. The Chetco Divide Trail was a portion of the route which this pioneering couple used when emigrating from the Klamath River to the Rogue River (Atwood, 1978).

Other trail systems effectively linked the coastal area with the interior of the Forest, and the interior with the Rogue Valley and Jacksonville. Many were routes that the miners, and the packers that supplied them, established to get their materials to and from the prospects. During the first three decades of this National Forests history, the trail systems were improved and expanded. Today many Forest roads, such as Forest Road #1107 on the western edge of the analysis area, follow these historic trail routes. Other remnants of this trail system form the recreational trail system in the watershed today.

The Depression of the 1930's brought an influx of people to the public forest lands. Numerous out of work individuals sought survival in the mountains undertaking a subsistence economy lifestyle. These people were also engaged in prospecting and small scale mining encouraged by the revaluation of gold. The Depression Era also saw the development of the Civilian Conservation Corps (CCC). Fire prevention and suppression, timber stand improvement, range improvement, soil conservation, road building and forest facilities construction were all undertaken by the CCC volunteers. The watershed contains little evidence of the work performed by the CCC. However, to the south of the watershed the Gasquet Ranger Station and the Patricks Creek Campground are two premiere examples of Civilian Conservation Corps undertakings.

Even though the historic element is by far more tangible than that of the prehistoric, much of this cultural fabric within the watershed is virtually unknown. None of the sites discussed above have been formally documented or evaluated for their historic significance.

Management Opportunities: Cultural resource surveys will precede all ground disturbing projects. All sites discovered will be documented and added to the Forest inventory. The significance of inventoried sites shall be evaluated for eligibility for the National Register of Historic Places. Suitable cultural resource properties may be interpreted for recreational use and educational benefit of the general public.

Does the watershed contain any culturally significant traditional use areas?

There is no evidence which suggests that any area within the watershed is presently used for traditional activities by local Indian groups. The three local recognized tribes consulted (Tolowa, Karuk, Takelma/Siletz) did not provide additional information regarding traditional use in the watershed.

What are the recreation uses in the watershed?

The primary recreational attractions in the watershed are the Kalmiopsis Wilderness, Sourdough Camp, and several trails. The overall recreational use of the watershed is considered to be light, however Sourdough Camp, which is the most popular recreation site in the watershed, can receive regular use during the summer months.

Sourdough Camp, an undeveloped semi-primitive campground, provides an opportunity for remote camping that is accessible by high clearance vehicles and motorcycles as well as hikers and other users. Recreational activities include swimming, fishing, camping, hiking, and occasional gold panning or dredging with a small suction dredge. Sourdough is one of the few campsites available for four-wheel-drive enthusiasts who are driving the primitive roads on the Smith River National Recreational Area and the Illinois Valley Ranger District. The Northwest Four-Wheel-Drive Association has an annual campout that includes a service project (usually trail maintenance and campground cleanup) at Sourdough. The few improvements at Sourdough Camp exist because of the efforts of the Association. Sourdough Camp is also sometimes used as a put-in spot by kayakers when water levels are high enough (winter & early spring). Access to Sourdough Camp is provided by Road 4402206 (dirt), Sourdough trail #1114, and the North Fork Smith River trail #1233.

The annual amount of dispersed camping use at Sourdough Camp is difficult to determine due to its remoteness and low frequency of Forest Service personnel visitation. It is known that the camp receives regular use in the summer and the Four-Wheel-Drive Association's campout can have over 200 people at the site. Winter use is limited to non-existent since snow blocks access. The camp has been used historically by the local residents of Cave Junction and Crescent City.

On the main flat south of Baldface Creek, there are three rustic outhouse facilities dispersed through the area, several well-used campsite areas (7+); and 19 fire-rings of various size and showing various frequencies of use. On the terrace on the north side of Baldface Creek, there is one rustic toilet facility in relatively good condition, a couple of well-used campsite areas, and three firerings of medium to small proportion.

Access into Sourdough Camp is by a rough, native surface road. It is rutted and surface erosion has occurred. There are limited stream crossings on this road and the extent that the erosion is affecting water quality is negligible. There is an opportunity to improve access, although this could bring more non-four-wheel-drive vehicles into the site, and a potential for user conflicts. There is also an opportunity to improve the roadway at the camp itself, and fill two extensive mudholes. The facilities, such as toilets and picnic tables, could be improved, and camping sites could be established. The extent of improvement would have to be weighed with the level and type of use that would be appropriate for the site.

The major activities associated with the Kalmiopsis Wilderness include hiking, backpacking, camping, and nature study. Four trails provide access to the Kalmiopsis Wilderness. One of these, the Baldface Trail #1215, passes through an old mining settlement at the mouth of Spokane Creek. The trail is used mostly by hikers but there is some use by riders of all-terrain vehicles and horses. The settlement is used as a campsite. These trails and the portion of the Wilderness within the watershed all have light recreation use.

There are two trails that do not provide wilderness access. The Sourdough Trail #1114 is 3.9 miles long and runs from the trailhead on the 1107220 road, through the proposed Lemmingsworth Gulch Research Natural Area, to Sourdough Camp. The trail goes through a bog and monitoring should continue at this location to ensure adverse effects do not occur. The trail provides access to the Cedar Mountain backcountry recreation area. This trail receives relatively light use mostly by day hikers. People interested in botany also use the trail to access the uncommon plants supported by the serpentine soils found in the Lemmingsworth Gulch area. The Frantz Meadow Trail #1216 provides access to Frantz Meadow (approximately 5 acres) in the Baldface Creek Drainage. Some camping occurs at the meadow.

Motorized recreation is limited by the lack of roads in the watershed. The 1107 road and its spurs provides access to the watershed on the westside of the North Fork Smith River. Much of the recreational use of these roads occurs during hunting season by local hunters. The roads are also used by sightseers with the 1107220 road being the most popular because of its views of the Wilderness and serpentine areas. The 1107220 road is closed during the wet season (October 1 to June 1) to reduce the risk of importing Port-Orford-cedar root disease.

The 4402450 road (the McGrew Trail) roughly follows the divide between Baldface Creek and Diamond Creek. The primary activity associated with the McGrew Trail is motorized four-wheel-drive off-highway vehicle (OHV) use and all-terrain vehicle (ATV) use. Sourdough Camp is a primary destination of the trail users. The Pacific Northwest Four-Wheel-Drive Association, including the Caveman 4 Wheelers and the Four Runners of Klamath Falls, takes active participation in use and maintenance of this trail. They have an Adopt-A-Trail agreement with the Siskiyou Nation Forest and they have an annual recreational trip and trail maintenance run called the Oregon Creek 'n Trail run on the third weekend in June. They have a 13-year history of their use and maintenance of this trail and the Sourdough Camp area.

The Cedar Mountain Non-Motorized Backcountry Recreation Area (MA-6) is adjacent to the southern boundary of the proposed Lemmingsworth Gulch Research Natural Area (T 41S, R 11W, S 9, 10, 11, 14, 15). It is approximately 1273 acres in size. The Sourdough Trail provides access to the northern edge of the area. From there the remainder must be reached by hiking cross country. A short section of the Sourdough Trail is the only facility in this backcountry area. Cedar Mountain Backcountry is almost entirely on serpentine and has very little recreational use.

Recreation use in the watershed is expected to continue at approximately the current level or slightly increase. The populations of Brookings-Harbor, Oregon, and Crescent City, California, and surrounding area is increasing. A large majority of the increase is from retirees moving to the area. The type of recreation often associated with retired users tends to be more facility-oriented and designed for greater accessibility. This kind of developed camping opportunities are non-existent in this watershed. The nearest developed camping areas are the Winchuck Campground on the Chetco Ranger District or the Panther Flat, Grassy Flat, and Cedar Rustic Campgrounds on the Gasquet Ranger District. The majority of the recreationists using this watershed and specifically Sourdough Camp, are from local areas in California and Oregon and are dispersed recreation oriented in nature.

Recreation Opportunity Spectrum

This watershed is stratified into various levels of recreational opportunities through use of the Recreation Opportunity Spectrum (ROS). This standardized rating system categorizes land areas into designations that reflect their potential to offer recreation experiences along a spectrum ranging from Urban (high use/highly developed) to Primitive. Several criteria are used to classify each setting in the spectrum. The Forest Service 1986 ROS Book can be referenced for the specific setting descriptions and the criteria used to classify them. The ROS information and designations are found in the Siskiyou Land and Resource Management Plan Final Environmental Impact Statement. (pg III-125).

The North Fork Smith River watershed in Oregon is most easily stratified into the following areas and ROS designations. The western, southern, and eastern boundaries of the watershed, forming a U-shape around the interior land area, are designated Roded Natural (RN). In the southwestern corner of the U-shape is the Cedar Creek Backcountry Area which is designated Semi-Primitive Non-Motorized (SPNM). The heart of the interior is split along a northeast/southwest diagonal line which is the Wilderness boundary. On the northwest side of the line is the Kalmiopsis Wilderness which has both Semi-Primitive (SP) and Primitive (P) designations. Southeast of the line is the Baldface Creek drainage and upper portions of the North Fork Diamond Creek drainage. This area has alternating designations of Semi-Primitive Non-Motorized (SPNM) in the lower reaches of Baldface Creek; Semi-Primitive Motorized (SPM) northeast and southwest of that; SPNM northeast of that; and SPM east of that.

There is a high probability of experiencing solitude and quiet in most areas of the watershed, due to its remoteness. There are also limited opportunities for experiencing other users and user groups, mostly in the Sourdough Camp area. In either case, the setting provides opportunities that have a high degree of interaction with the natural environment. Challenge and risk opportunities are moderate to high in most areas of the watershed, and consequently, safety considerations are of high concern as well. Opportunities for both motorized and non-motorized forms of recreation are possible.

Information Needs: More accurate data of recreational use in the watershed especially at Sourdough camp, would be desirable.

Management Opportunities: There may be opportunities to convert roads identified for decommissioning to trails. This is especially true of roads 1107220, 4402206, and 4402454 (to Biscuit Hill) if they are identified for decommissioning. There may be an opportunity to repair or improve access and facilities at Sourdough Camp.

What commodities can be produced from the watershed (timber, special forest products, mining)?

Timber

1,576 acres of timber harvest has occurred on the west side of the North Fork Smith River drainage from 1959 to 1989. Much of the watershed lies within the Kalmiopsis Wilderness. The remainder of the watershed has been designated Late-Successional Reserve (LSR) under the ROD, 1994. Additionally, the Baldface Creek drainage is designated backcountry recreation in the Siskiyou LRMP, with a visual quality objective of preservation. Commercial timber activities would be limited to thinning or brushfield conversion to accelerate growth and development of early and mid-seral stands into late-seral stands, or salvage from catastrophic events.

Management Opportunities: Commercial thinning could occur on the western side of North Fork Smith River and upper Baldface Creek. There are currently approximately 20 acres of potential thinning in two stands on road 1107180; 10 acres in one stand on 1107; 15 acres in two stands on 1107270; 15 acres in two stands on 1107290; and 10 acres in one stand on 1107330. Each of these stands needs further examination. Most of the opportunities for commercial thinning will occur with growth of managed stands. Approximately 1,500 acres of these managed stands have been managed for stocking levels for timber production (250 to 500 trees per acre). Commercial thinning to accelerate habitat may be an opportunity in these stands over the next 10 to 30 years.

Brushfield conifer enhancement could occur in dense hardwood stands on the western side of North Fork Smith River and lower south side of Baldface drainage that could enlarge interior forest blocks through removal of hardwoods and planting of conifers. Several large hardwood stands on the western side of the river were underplanted with conifers in the 1970's and sprayed with herbicides. These should be examined for release potential before any harvest.

Special Forest Products

Special forest products can be collected in late-successional reserve with an LSR assessment. The abundance of serpentine-derived soils supports a diversity of plants with potential for special forest products, including Port-Orford-cedar and white pine boughs and beargrass. While the adjacent Pine Flat area in California is a collection area, no special areas for boughs, beargrass, or huckleberry are identified in the Oregon portion of the North Fork Smith watershed. Special forest product activities have been limited due to lack of roading and distance to market. There is evidence of Port-Orford-cedar bough cutting on Road 1107220.

Management Opportunities: Future special forest products collection will be close to roads and markets, mostly on the west side of North Fork Smith River, in areas that are not high risk to Port-Orford-cedar.

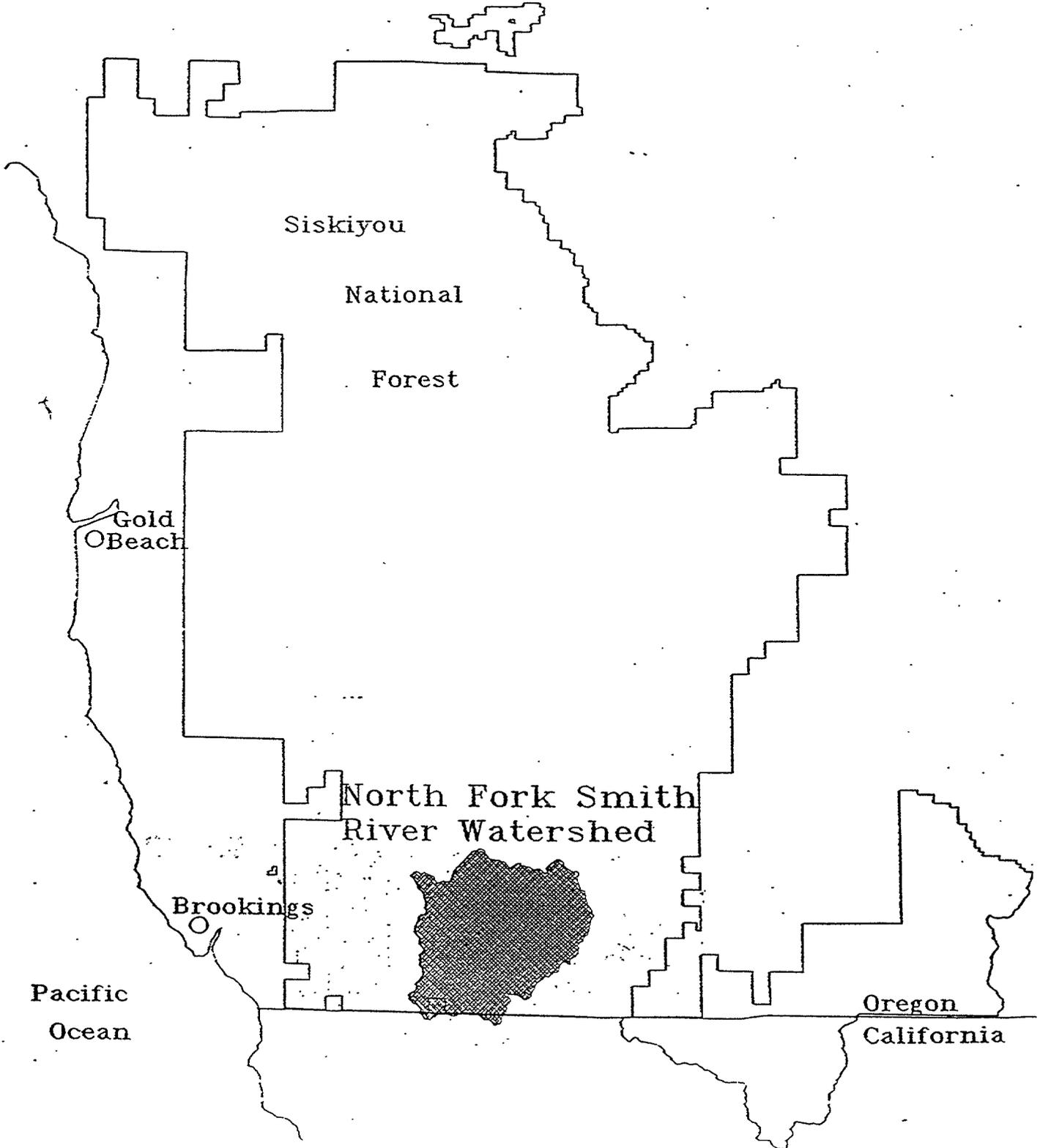
Mining

Historic mining has been minimal in the North Fork Smith basin as compared to other basins within the Forest. Chrome deposits occur in ultramafic rocks and the two largest mining operations in the North Fork Smith watershed are near the mouth of Baldface Creek. The Sourdough Mine was first worked in 1918. It also operated during the war periods from 1941 through 1943, and was reopened again in 1951 and was worked through 1958. Ultramafic rocks also contain metals such as chromium, nickel and cobalt.

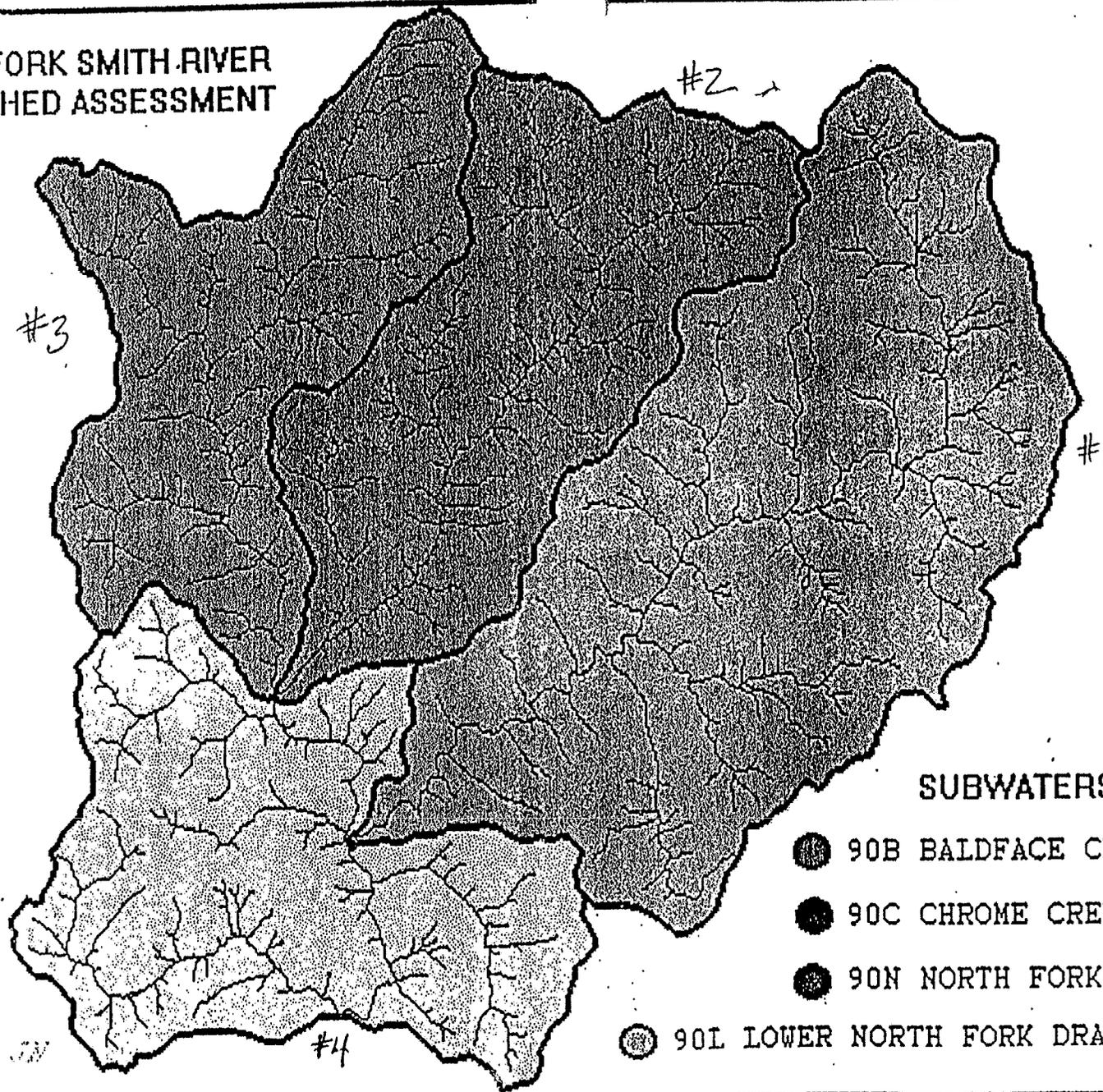
Recent claims have been filed for iron-nickel laterites, which also contain cobalt, but no chrome or nickel laterite claims are being worked at this time. A few gold placer claims are currently filed. Even fewer lode deposits are known. Spokane Creek may have had historical gold lode activity, as well as placer mining. Granitic rocks in the nearby Josephine Creek drainage have been mined for lode gold. The potential for gold mining in Baldface Creek may be greater than is indicated by literature and the small number of current claims.

Vicinity Map

North Fork Smith River Watershed



NORTH FORK SMITH RIVER WATERSHED ASSESSMENT



SUBWATERSHEDS

- 90B BALDFACE CREEK #1
- 90C CHROME CREEK #2
- 90N NORTH FORK SMITH #3
- 90L LOWER NORTH FORK DRAINAGES #4

GIS Maps and Reports

North Fork of the Smith River Watershed Analysis

Maps available from MOSS (Map Overlay and Statistical System, GIS software):
(Both polygon and raster available).

North Fork Smith River Watershed
Subwatersheds
Management Allocations
Late-Successional Reserves

Maps available from UTools (PC software):

Watershed boundary
Subwatershed boundaries
Streams and subwatershed boundaries
Stream classes
Fish distribution
Managed stands by elevation zones
Managed stands in elevation zone 2500 feet to 4000 feet
Managed stands and subwatershed boundaries
Managed stands, roads, streams, and subwatersheds
Managed stands, streams, and topography lines
Silvicultural opportunities
Tree canopy cover
Forest openings
Slope classes
Watershed terrain in three dimension (digital elevation model)
Forest tree species
Vegetation structural stages
Roads and streams with subwatershed boundaries

Paradox data tables (PC software):

UTMs, subwatershed, elevation, roads, streams, acres, miles, managed stands, and stream class for each pixel.
UTMs, subwatershed, elevation, percent slope, and aspect in degrees for each pixel.
UTMs, subwatershed, PMR polygon, TRI cell key, canopy cover, size structure class, canopy size structure class,
Forest species class, Region species class, Non-tree class, acres, vegetation structural stage, and silvicultural
opportunity class

UTools Reports:

Acres of analysis area in relation to entire Smith River
Acres, harvest method, and year harvested for managed stands
Acres of managed stands by subwatershed
Acres of vegetation structural stage by subwatershed
Acres by tree canopy cover class, and percent of watershed by canopy cover class
Road density by subwatershed in miles per square mile
Acres of forest openings, by type
Acres by elevation band, subwatershed, and managed stands
Total stream miles by class by subwatershed
Acres by silvicultural opportunity class
Acres by Regional species code

CHETCO RANGER DISTRICT RESTORATION PRIORITIES IN WINCHUCK AND NORTH FORK SMITH WATERSHEDS

The following list is a ranking of roads which could receive restoration work in the Winchuck and North Fork of the Smith watersheds. Restoration work would be completed as funding allowed. This ranking was completed by an interdisciplinary team in December, 1994. It was reviewed by an interdisciplinary team to determine if any changes needed to be made following the completion of the Winchuck and North Fork Smith watershed analyses.

Road/Length	Sediment Delivery Potential	Potential Effects to Fish Streams	Potential Effects to Non Fish Streams	Road Priority Ranking	Page	Work Planned or Completed
1205 MP 7.95 - 11.20	HIGH	HIGH	HIGH	1	10	FY 95
1106060, 3.83 mi.	HIGH	HIGH	HIGH	2	2	FY 95
1205266, 1.0 mi.	MODERATE	HIGH	HIGH	3	18	FY 95/96
1205244 unnumbered spur, 0.72 mi.	HIGH	MODERATE	HIGH	4	15	FY 96
1205240, 3.0 mi.	MODERATE	HIGH	HIGH	5	13	FY 96
1205 MP 3.69 - 7.95	MODERATE	HIGH	HIGH	6	9	FY 95
1107170, 171, 174, 176 5.30 mi.	MODERATE	MODERATE	LOW	7	6	FY 95/96
1205247, 0.8 mi.	HIGH	LOW	HIGH	8	17	
1107220 (seg 2), 0.2 mi. (end of road)	MODERATE	LOW	MODERATE	9		
1107294, 1.25 mi.	MODERATE	LOW	MODERATE	10		
1107290, 2.5 mi.	MODERATE	LOW	MODERATE	11		
1107270, 4.5 mi.	MODERATE	LOW	MODERATE	12		
** 1107220 (seg 1), 4.5 mi.	MODERATE	LOW	MODERATE	13		
1983150 unnumbered spur, 0.19 mi.	MODERATE	LOW	HIGH	14	9	

Road/Length	Sediment Delivery Potential	Potential Effects to Fish Streams	Potential Effects to Non Fish Streams	Road Priority Ranking	Page	Work Planned or Completed
1205 MP 12.9 - 16.9	LOW	HIGH	HIGH	15	12	
1205240 unnumbered spur at MP 1.15, 0.25 mi.	MODERATE	MODERATE	HIGH	16	14	
1106080, 3.50 mi.	LOW	* MODERATE	LOW	17	3	
1107160, 3.60 mi.	LOW-MODERATE	LOW-MODERATE	LOW-MODERATE	18	5	
1205244, 2.0 mi.	LOW	MODERATE	MODERATE	19	15	
1107293, 1.0 mi.	MODERATE	LOW	MODERATE	20		
unnumbered spur between 1983150 & 160, 0.53 mi.	LOW	LOW	MODERATE	21	8	
1205245,246 248,249, 3.02 mi.	LOW	LOW	LOW	22	16	
1107276, 2.25 mi.	MODERATE	LOW	LOW	23		
1106050, 0.2 mi.	LOW	LOW	LOW	24	1	
1107, MP 0.0 - 3.0	LOW	LOW	LOW	25	4	
1107150	LOW	LOW	LOW	26	5	
1107240 & 246	LOW	LOW	LOW	27	7	
1107430, 2.19 mi.	LOW	LOW	LOW	28	8	
1205 unnumbered spur west of 1205/1107 junction, 1.51 mi.	LOW	LOW	LOW	29	12	
1205320,321, 1.76 mi.	LOW	LOW	LOW	30	19	
1107330, 0.95 mi.	LOW	LOW	LOW	31		
1107332, 0.17 mi.	LOW	LOW	LOW	32		

Road/Length	Sediment Delivery Potential	Potential Effects to Fish Streams	Potential Effects to Non Fish Streams	Road Priority Ranking	Page	Work Planned or Completed
1107334, 0.30	LOW	LOW	LOW	33		
1107180,	LOW	LOW	LOW	34		
1107190,	LOW	LOW	LOW	35		
1107291, 0.80 mi.	LOW	LOW	LOW	36		
1107221, 0.70 mi.	LOW	LOW	LOW	37		
1107277, 0.20 mi.	LOW	LOW	LOW	38		
North Fork Smith, four unnumbered spurs	LOW	LOW	LOW	39		
1106080 unnumbered spur at MP 1.70, 0.50 mi.	LOW	LOW	LOW	40	4	

* - Cat Creek has domestic water withdrawals

** - 1107220 road has POC concerns considered to achieve this ranking. Refer to North Fork Smith 4th Meeting Notes dated 9/14/94.

Page numbers refer to the Winchuck Field Note Summary. Roads without page numbers are located in the North Fork Smith Field Note Summary.

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